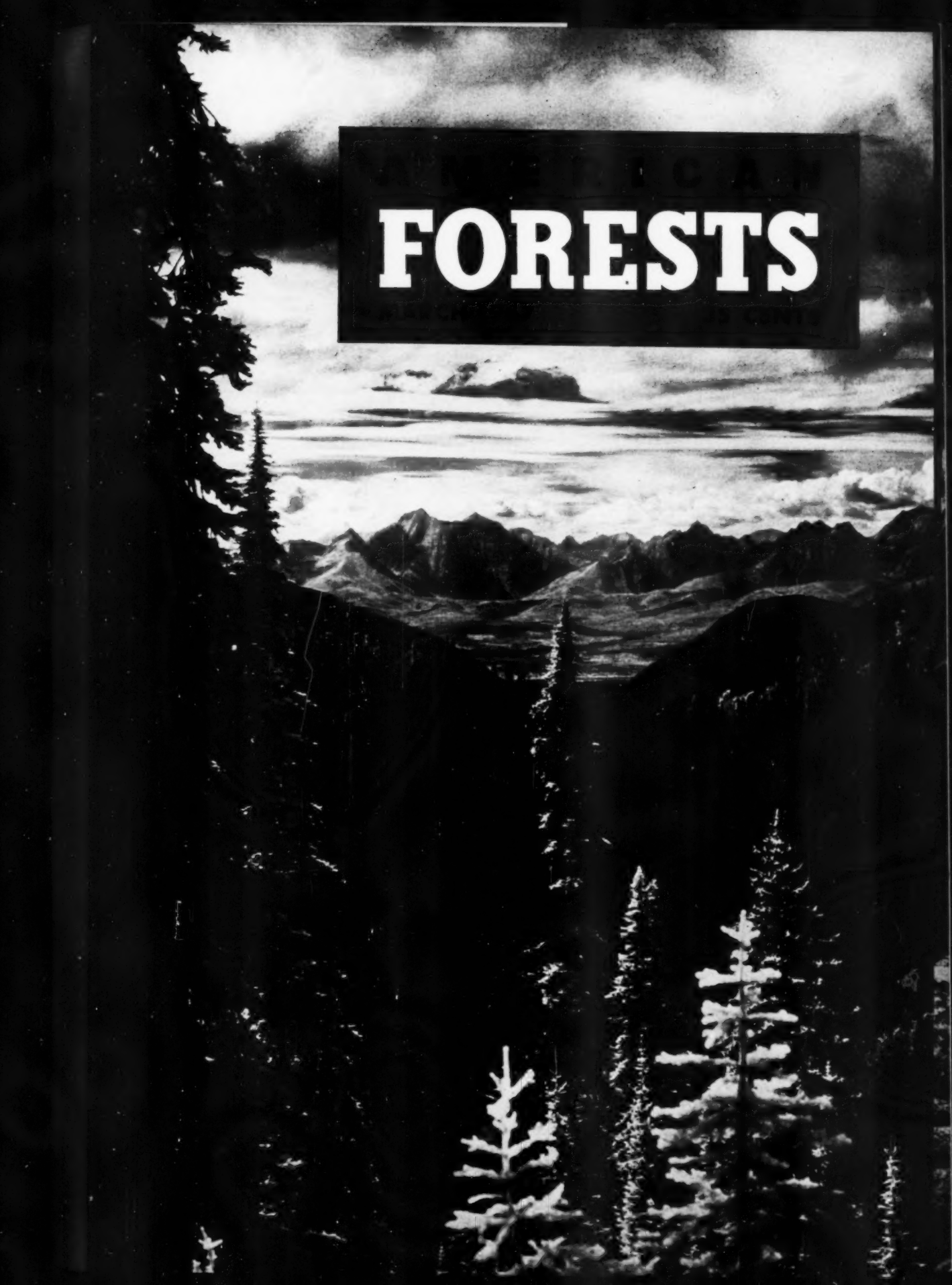
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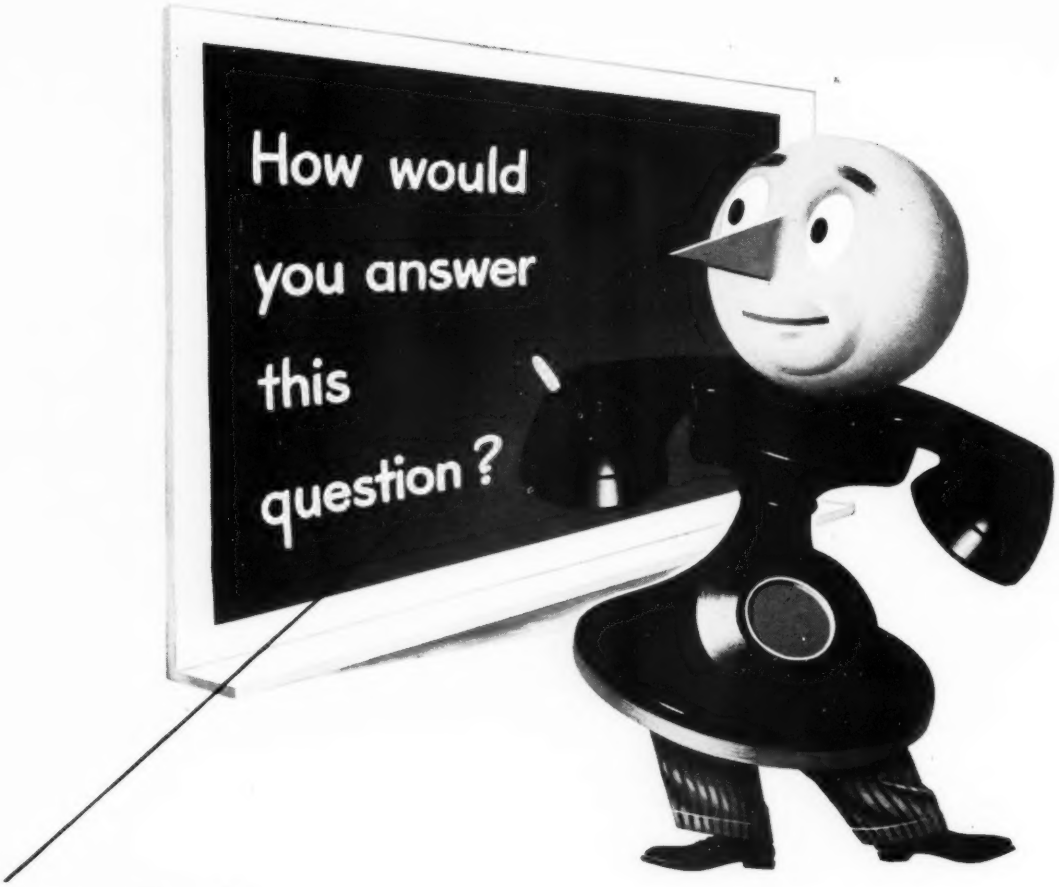

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Twelve per cent said "6% or less."
Eleven per cent said "7% to 10%."
Twelve per cent said "15%, 20% or 25%."
Eight per cent said "30% or more."
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The actual figure is less than many people think. Even with telephone calls at a record peak, Bell System earnings on the money invested in the business have averaged only a shade over 5½% for the last five years – including the war years. And that's not enough to insure good telephone service.

We thought you might like to know in case you have been wondering about telephone earnings.

BELL TELEPHONE SYSTEM

AMERICAN FORESTS

Published by The American Forestry Association

VOLUME 53 MARCH, 1947 NUMBER 3

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Peaks of Glacier National Park
Photograph by John L. Blackford

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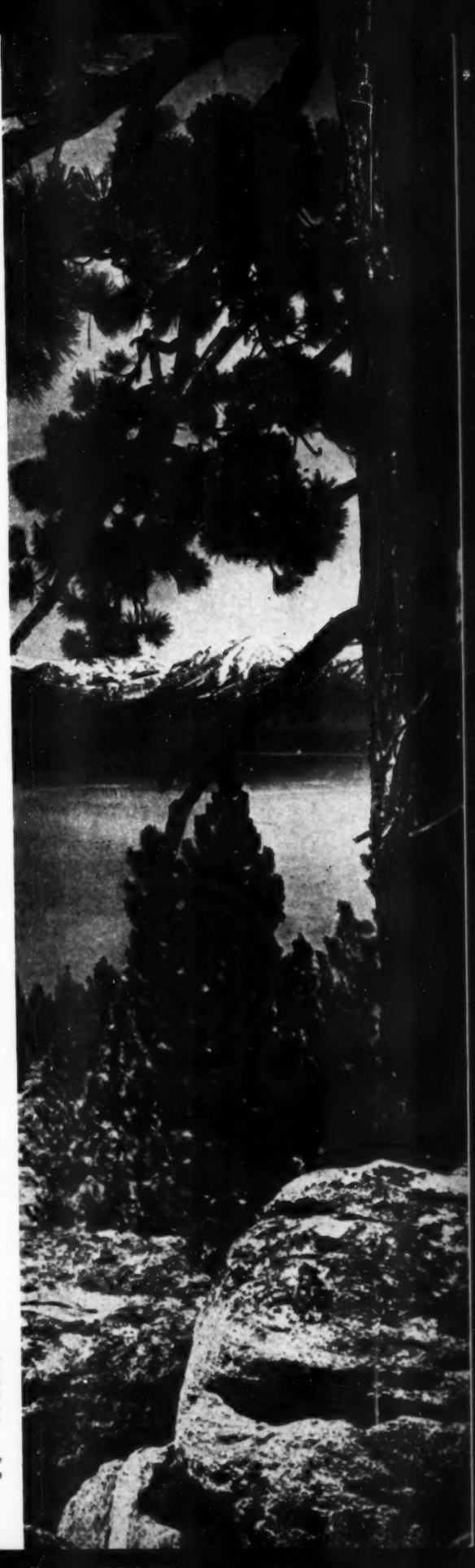

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The Purpose

The American Forestry Association is a national organization—educational in character—for the advancement of the intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is (1) to bring about adequate protection and perpetuation of these resources by creating an enlightened public appreciation of the need of conserving them through wise use for the present and future welfare and enjoyment of all the people; (2) to make available to Americans in all walks of life a wider knowledge and appreciation of their forest resources and the part they can play in the social and industrial life of our nation.

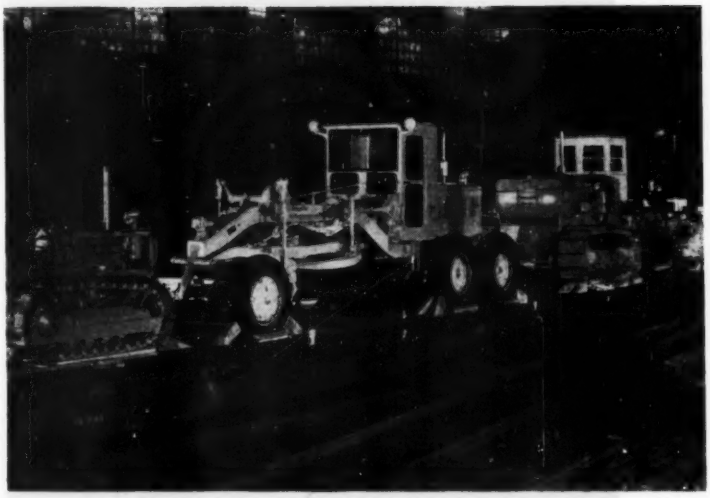
The History MORE THAN half a century ago American men and women of vision, stirred by the rapid destruction of forests and forest life in the United States, began to raise their voices in behalf of conservation. Foreseeing the danger of allowing America's rich forests and vast natural wealth to be thoughtlessly wasted, these public-spirited individuals protested the needless destruction that was taking place. Out of their efforts came a collective force—The American Forestry Association, first organized in 1875 and made a national influence in 1882.

The Record THUS The American Forestry Association has a long record of efficient public service. The establishment of the United States Forest Service and the creation of the nationwide system of state and national forests and parks were due in no small part to the Association's efforts. Its educational work, extending over more than seventy years, has stimulated public action and built public support for protection against forest fires and floods; for prevention and control of soil erosion; for the development of conservation policies in forest management for continuous production through wise use; for the control of forest insects and diseases and the preservation of fish and wildlife.

The Support FROM AN ORGANIZATION of a few hundred members three decades ago, the Association has attained a substantial membership of many thousand men and women, living in every state in the Union and in foreign countries throughout the world. The funds of the Association are administered by a Board of Directors composed of individuals of national standing—men and women who give their services free, who have a practical understanding of the nation's present-day conservation needs, and are equipped through experience, ability, enthusiasm and training to advance the Association's program.

The Program BECAUSE OF its independent, non-political character, the work of The American Forestry Association is vitally necessary in the field of public service. It provides an unprejudiced influence for the development of sound conservation measures. It helps coordinate public, state and federal policies. It cooperates closely with federal, state and private agencies in conservation work. At the same time it initiates, sponsors and carries on needed projects in conservation in addition to its regular broad continuous program of education.

The Embarrassment of Success



EVERY now and then a manufacturer succeeds in making a product so outstanding that public demand for it overwhelms production facilities. In his zeal for winning friends he finds himself making enemies—people eager to buy who cannot be assured immediate or even early delivery.

Thus, the earnestness the manufacturer has given to years of research and development—of product improvement and still better product performance—of efficient manufacture and unusual customer service . . . seems to come back to haunt him.

It is the embarrassment of success.

In becoming the world's leading manufacturer of Diesel engines, track-type tractors and motor graders, "Caterpillar" found many buyers forming a waiting line during the years when all products went into war use. To that waiting line were added many more whose favor was won by the illustrious war performance of these machines.

Thus, despite the fact that "Caterpillar" production is at a high point, demand is still outrunning supply. To catch up—and also to provide an extra margin of facilities for future needs—production is being increased as rapidly as possible by an expansion program that is adding *50 per cent more plant.*

"Caterpillar" is deeply conscious of the problems of the many users who prefer and patiently wait for "Caterpillar" products. "Caterpillar" thanks every customer for such patience in awaiting his turn on deliveries. You can be sure that "Caterpillar" effort is the human utmost. It is live, resourceful—determined that, even in the face of material shortages and disturbed economic conditions, there shall be no unnecessary delays.

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Tree Planting—the Tennessee Valley Way

SIR: We have read with much interest the article entitled "Needed: A Tree Planting Program," by John F. Preston, which you published in the October 1946 issue of AMERICAN FORESTS.

The situation described by Mr. Preston is brought to attention at a time when, through the efforts of The American Forestry Association and the American Forest Congress, a nationwide effort is under way to clarify and strengthen the national forestry program. You and others concerned with this movement may be interested to learn that a comprehensive reforestation project, which provides at least a regional solution to some of the problems discussed by Mr. Preston, has been developed and is working effectively in the Tennessee Valley through the cooperative participation of the state and federal agencies concerned.

This Tennessee Valley reforestation project was developed after thorough consideration with and by the state forestry and extension service organizations in the seven Valley States and after consultation with interested federal agencies. The long experience of these organizations in tree planting has been supplemented by 12 years of TVA experience in the reforestation of some 120 thousand acres and in the production of 160 million tree seedlings. Valuable guidance in planting techniques has been provided by comprehensive studies conducted in cooperation with the U. S. Forest Service. The project has been adopted in the Valley portions of Alabama, Kentucky, Mississippi, Tennessee and Virginia, and is now awaiting local adjustment of working arrangements for approval in North Carolina. We are taking this opportunity to describe the project, in the belief that it may be of interest to others engaged with similar problems.

Here, briefly, are the essential elements of this reforestation project promoted through the collaboration of the state foresters, the extension services, and the Tennessee Valley Authority:

Tree seedlings of the species desired and in the quantities requested by the state foresters are produced in TVA nurseries and distributed through the state agencies to landowners within the watershed. No cash payment for trees is required. The state forester or his field representatives approve all applications; farmer applications are first approved by the extension service. Approval of an application involves all the necessary contacts with the planter, before, during, or after planting, by the appropriate agency to assure that he has the information and assistance he needs to make his plantation successful. His application carries with it his agreement to follow through to this end. The technical assistance of TVA foresters is made available to the state agencies upon request, until these agencies can staff and equip themselves to carry on without this assistance.

Tree planting is of major importance in the Tennessee River watershed of some 26 million acres. It is necessary not only to restore idle lands to forest production, but also to provide watershed protection in a drainage basin consisting of steep slopes and soils which erode excessively in this region of high rainfall. In view of the large public expenditures for water control and engineering developments in the Tennessee River system, good watershed protection is essential to extend and maximize the investment through siltation control and stabilized streamflow. Surveys have shown that at least a million acres are still in need of planting, including severely burned and understocked stands as well as several hundred thousand acres of idle and severely eroding lands unfit for further cultivation.

Moreover, reforestation has proved to be a valuable means of arousing landowner interest in and support for other activities of forest resource development. For instance, the experience of the cooperating agencies indicates beyond question that people who engage actively in tree planting become staunch advocates of forest fire control. Consequently, reforestation is regarded as a major project, along with forest protection, management, and utilization.

Before the war, or from 1933 to 1941, assistance in the reforestation of eroding farm lands was a major activity of the TVA Department of Forestry Relations. Impetus was given to reforestation by cooperation from the state extension services and by active participation of CCC camps assigned to this work by the U. S. Forest Service. Forest nurseries established by TVA at Clinton, Tennessee, and at Muscle Shoals, Alabama, produced up to 26 million trees annually, which were distributed without cost to landowners who agreed to protect and develop their plantations. Additional quantities of seedlings were grown in state nurseries and provided to planters under the Clarke-McNary plan of distribution. When the war started, most of this effort in reforestation was necessarily curtailed.

In 1945, the postwar opportunity for further development of the forestry program in the Valley found the cooperating state and federal agencies prepared to resume an effective project of reforestation, and eager to develop its full potentialities. It appeared timely to break with out-dated practices and precedents. A thorough analysis of the situation based upon past experience revealed some of the shortcomings discussed by Mr. Preston which appeared to call for constructive action.

The exploratory nature of the entire Tennessee Valley program provided the opportunity for attempting a thoroughly realistic approach to reforestation problems. You may recall that the Act of Congress creating the Tennessee Valley Authority provided, in effect, for its use of the

(*Turn to page* 143)

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19% has been reserved to fill needs of Federal agencies received by April 30th. All other orders received by this date will be filled in following sequence: (a) Veterans of World War II; (b) All other priorities; and (c) Commercial purchasers. Purchaser's order must state thereon: (a) "This order is subject to WAA Standard Conditions of Sale, and all other advertised terms and conditions, and no other terms and conditions shall be binding on War Assets Administration"; and (b) Type of business and level of trade.

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1033-A

Editorial

Home on the Range

THE announcement by Secretary of the Interior Krug that grazing fees on the public range lands under the jurisdiction of his department will be increased 60 percent on May 1 makes timely the reading of one section of his annual report for the fiscal year 1946, issued last month. This section, titled "Home on the Range," and dealing with federal grazing districts in 10 western states, is refreshingly readable—and revealing.

"Much of our red meat eats off the government," the Secretary wrote. "One beef animal in every five and two sheep in every five get about four months of their feeding each year in the public domain, and in spite of the low quality of most of the range, get it for very little. There are 145 million acres of federal range lands (grazing districts) and the beef animals pay an average of 20 cents and the sheep four cents a season."

Elsewhere in the report it is brought out that during 1946 a total of 9,397,756 livestock grazed these public ranges under permits and licenses. The number of licensed operators, which presumably means stock owners, totaled 21,329.

In stating that these stockmen and their more than nine million animals get public range "for very little," the Secretary, we think, is putting it mildly. It is doubtful if anywhere else, in this or any other country, is so much range made available at such low prices. And the 60 percent increase in fees changes this fact but little, as a brief analysis will show.

Private range lands in the West, where the public domain ranges in question are situated, are yielding the owners 5 to 10 times more per animal grazed than the public will receive through the Interior Department—even under the increased rates just announced. Nor does the comparison improve greatly when the Department of Interior rates are placed alongside those charged by the U. S. Forest Service for range within the national forests. These, too, are public lands, but under the jurisdiction of the Department of Agriculture. Here the prevailing rates for cattle average thirty-one cents per animal month for cattle and seven and one-half cents for sheep, as against Interior's "increased" rates of eight cents for cattle and one and three-fifths cents for sheep.

These comparisons throw into relief what Secretary Krug means when he says "much of our red meat eats off the government." The beneficiaries are not the public who owns the lands and pays the costs of administration, but the stockmen who enjoy the privilege of fattening their cattle and sheep on the grazing districts.

But comparisons of fees charged do not outline the whole picture of what the stockmen get and the public gives. The Taylor Grazing Act, which empowers the department to charge for the privilege of grazing stock on the public domain, provides that 50 percent of the fees collected shall be returned to the states in which the lands are located, that 25 percent shall be spent by the department for range improvements and that the remaining 25 percent shall go into the United States Treasury.

With one or two exceptions, each of the western states has passed a special act turning its 50 percent of the fees over to local boards of stockmen to be spent by them to improve and develop the range. The result is that ever since passage of the Taylor Grazing Act in 1934 the department's business of "letting out" 145 million acres of public range netted the federal treasury only a trifling one-tenth of a cent an acre.

The picture is not changed materially by Secretary Krug's announcement that grazing fees will be upped 60 percent. After May 1, the stockmen will pay three cents more a head a month for cattle and three-fifths of a cent more for sheep and goats. If applied to the same number of cattle and sheep that grazed on the public domain in 1946, this would increase grazing fees from $736,267 to $1,178,026—but the federal treasury's share, and therefore the public's, would still be a fraction of a cent an acre.

Basis for this token increase in rates—and it can be considered little more than that—is an investigation "of federal range fees and problems" by Rex L. Nicholson of California, appointed for the purpose as special consultant by Secretary Krug. Outside of a press release stating the investigation developed that "rates were far out of line not only with the cost of administration of the federal range, but also with the value of the facilities and services made available to the livestock industry on the range," little is known of Mr. Nicholson's findings. His report, said to have generated considerable differences in opinion in the department, is labelled "Confidential."

It may be a coincidence that the 60 percent increase in fees the Nicholson report apparently recommends is also the rate of increase stockmen have indicated they might accept. However that may be, Secretary Krug is to be commended on his action in increasing the fees even though they are still, we think, much out of line. It is to be hoped the Secretary will continue his efforts to place them on a more equitable basis in relation to other government lands and private range in the West.

The stockmen have not been satisfied with the low rates that have long prevailed and they doubtless will vigorously protest the new. As a matter of fact, they are proposing to acquire the whole public range in fee simple, including that in the national forests (see editorial "Lest Congress Forget" in the February issue). Secretary Krug, however, has more than the stockmen to consider in that the conservation and development of the range lands in question depends upon sound business as well as sound land management. In moving in this direction—and we hope further action will follow — the Secretary unquestionably needs and should have the support of the public.

"Timberline Veteran"—Photograph by John Kabel

A PROGRAM FOR AMERICAN FORESTRY

Associated Photographic Service

The Board of Directors of The American Forestry Association on February 1 submitted the following program of American forestry to its membership for adoption by referendum vote. Proposed after an exhaustive and painstaking study of information from many sources, including the Association's Forest Resource Appraisal and the October American Forest Congress, the program, the Board believes, will, if promptly and vigorously applied, meet the nation's forest resource problem. The membership vote will be tabulated by a special committee early in March and announced in the April issue.

WHY A FOREST PROGRAM

Forests are a basic natural resource of the United States.

Forests provide wood and many other materials for the needs of our people and for the employment of labor and capital in industry and on farms.

Forests support domestic and foreign trade.

Forests conserve and regulate inland waters essential for irrigation, navigation, power, aquatic life, domestic use and pleasure.

Forests protect crop and other lands from erosion and deterioration.

Forests furnish food and shelter for wildlife and forage for domestic livestock.

Forests provide outdoor recreation, education and natural beauty, thereby promoting the health and spiritual well-being of our people.

The United States is fortunate in having sufficient forest producing lands to supply the needs of its people within the foreseeable future. These lands aggregate more than 656 million acres, or one-third the land area of the nation.

One of the vital reconstruction problems now confronting America is to make this wealth of forest land contribute its maximum to American life.

To meet that problem The American Forestry Association presents this program of action—national in scope. It is based primarily on the need for education of forest owners in tree growing and its economic possibilities and on the need for effective teamwork between private owners, the states and the federal government in realizing those possibilities.

The program rests on the conviction that improved forest management, particularly in the production of commercial crops of wood, must stem chiefly from the initiative of enlightened private ownership; that the states must accept greater responsibility for dealing with their own forest conditions and needs, including harvesting controls adequate to maintain all forest lands in production; and that the federal government must exercise vigorous leadership through the wise handling of federal lands and increased activity in the fields of education and cooperation under the general pattern established by the Clarke-McNary Act.

WHAT THE PROGRAM SHOULD DO

The objective of a national forest policy should be to grow and maintain forests on all lands of the United States available for forest management; and to develop types of management that will assure maximum yields in terms of wood production, watershed protection, parks, wildlife conservation and other forest values.

It should be the national policy to conserve the human values inherent in abundant forests. Aside from the essential service of forests to recreation, a sustained yield of wood is the basis in many parts of the United States of stable communities and payrolls, maximum employment and satisfactory working conditions for labor. These goals are vital parts of a national program and their attainment will add wealth and prosperity to the country.

The proposals that follow are designed to assure ample supplies of forest products and services of all kinds through the wise management of our forest lands. Such management includes:

Production of wood and other materials for domestic and industrial use.

Production of forage for consumption by livestock on lands where grazing can be permitted without undue damage to the forest.

Maintenance of watershed cover to conserve water supplies, to check floods, and to control erosion.

Establishment of windbreaks and shelterbelts for the protection of homes, livestock and crops.

Production of wildlife for food and fur, for the control of insect pests, and for the enjoyment of tourists, hunters, fishermen, and other users of the outdoors.

Reservations devoted to the preservation of wildlife and natural conditions for scientific study; to outdoor recreation and spiritual uplift.

Several forms of management can often be combined on the same area. When they conflict, the type of management which yields the largest economic and social returns is to be preferred.

WHAT THE PROGRAM IS

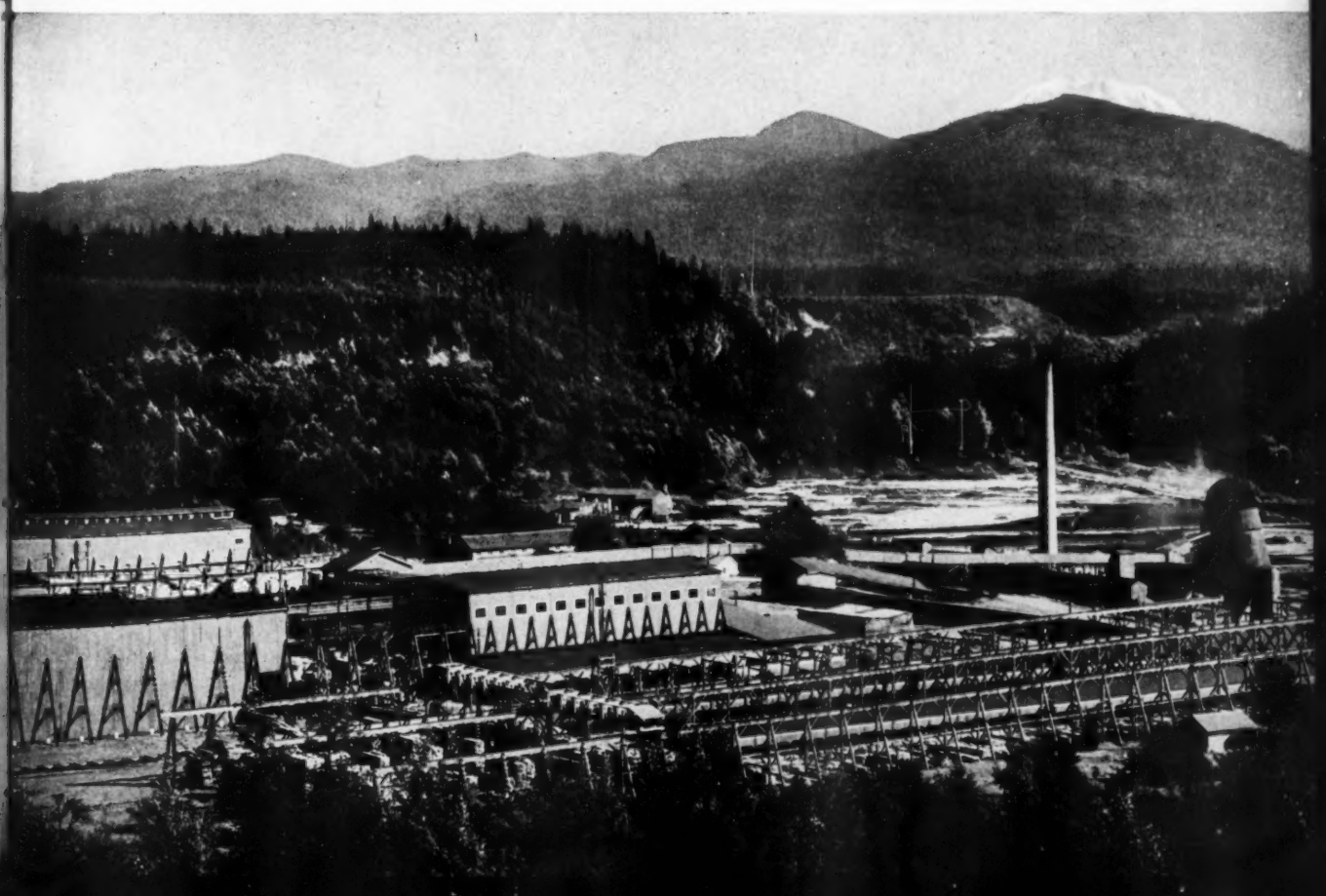
Protection of the Forest Resource from Fire

1. Federal, state and private expenditures necessary for the effective protection of all forest and watershed lands.

2. Continued aggressive development of cooperative protection under the federal Clarke-McNary Act with financing in keeping with current costs and the requirements of intensive, long-term forest management, includ-

A permanent yield of forest products is the basis in many parts of the United States of stable communities and payrolls, maximum employment and satisfactory working conditions for labor

K. S. Brown



ing prompt extension of organized protection to all forest lands not now receiving it.

3. Establishment of citizens' organizations in each state to provide leadership in stressing public responsibility for fire prevention; reducing the number of man-caused fires and vigorously supporting adequate state protection organizations and expenditures.

The first essential of forestry is adequate protection. The pattern of federal-state cooperation has been well developed from 20 years' experience under the Clarke-McNary Act. As a result protection from fire is well organized in many states. Present needs are summed up in the two words "adequacy" and "enforcement."

Because of rising costs of manpower, equipment and supplies, and higher standards, the estimate of annual requirements for effective protection has increased from $18,000,000 to $32,000,000 during the past three years. The current federal appropriation, which must be matched by state and private funds, is $8,300,000.

State action is necessary to match available federal contributions and to put the cooperative policy into full effect; for example, protection should be promptly extended to the 130,000,000 acres of forest land now without it.

Fire control activities must be aggressively supported by local populations, and state fire laws more rigidly enforced.

Protection of Forests from Insects and Diseases

4. Federal legislation to authorize the Department of Agriculture to cooperate with the states and private landowners to eradicate or control forest insect and disease outbreaks, with adequate appropriations—including emergency funds immediately available for prompt action.

5. Development of more effective methods to prevent the introduction into the United States of forest diseases and insects from foreign countries by strengthening existing port inspection and foreign observation services, and by providing for prompt detection of introduced diseases and insects.

6. Provision in state and federal organizations for a larger staff of experts to educate forest owners in management practices for controlling insect and disease losses.

Insects and diseases rank next to fire as forest enemies; indeed they destroy more sawtimber than fire and often ruin forests managed for watershed, park and other non-commercial purposes.

Many demonstrations of effective control of forest insects and tree diseases by plan-wise harvesting indicate the importance of good forest management in the control of these losses. More forest entomologists and pathologists are needed in connection with experiment stations and field organizations, to develop control practices and extend their use.

The United States still lacks a basic law for cooperative protection from forest-destroying pests, like the Clarke-McNary Act for control of fires. Such legislation is essential.

Education of the American Public

7. A coordinated nationwide campaign by all interested agencies and organizations employing every available medium to impress the average citizen with the importance of forests to economic and social welfare.

8. Concerted action by appropriate groups, agencies and organizations in each state to bring about effective private, state and federal policies and programs of forest management and utilization.

The success of American forestry in all its fields rests upon a thorough understanding by our citizens of the value of forests and forest products to individuals and their communities and to their state and nation. Without such public awareness, desirable measures of forest conservation will be difficult to attain. Education to bring about this understanding should begin in the public schools. It will be most effective when related in specific terms to local conditions and needs.

The educational activities in each state should rest on factual analyses of the actual extent and effectiveness of fire prevention and other good forest practices; the condition of the state's forest lands and growing stock; its present and potential production in relation to industrial and consumption requirements; the net position of the state as an importer or exporter of wood; and other important contributions made by forests to the state's welfare.

The individual state reports in the Association's Forest Resource Appraisal afford an excellent starting point for this type of education.

Education and Assistance for Forest Owners

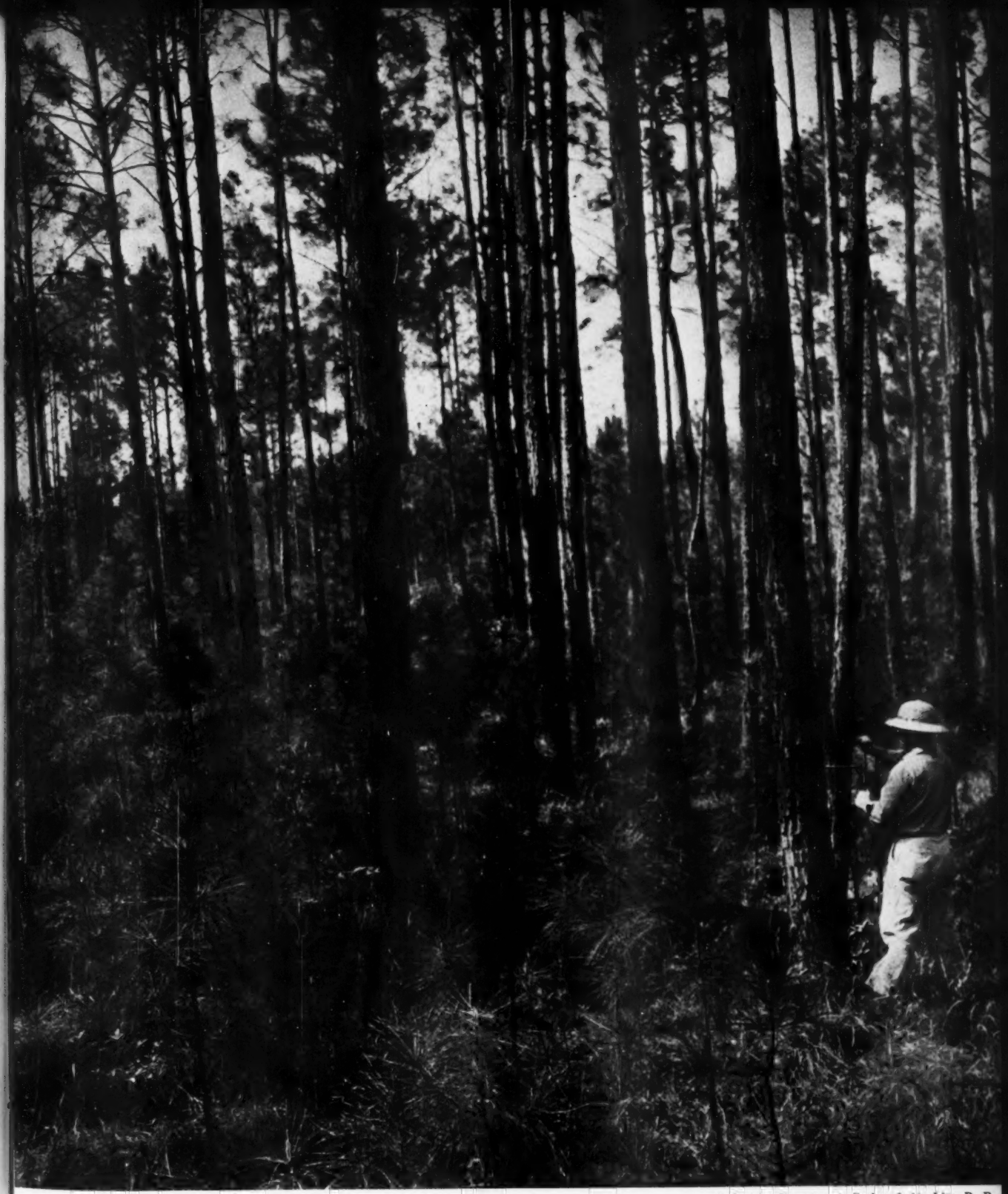
9. Vigorous nationwide expansion under federal leadership of advice and technical assistance to owners of small forest properties, whether attached to farms or not. As a basis for federal policy and financial cooperation, broad educational and group actviities should be conducted by state extension services; action programs and individual service on the ground should be directed by state departments of forestry under federal and state policies clearly defining the limits of free public aid.

The foregoing division of activities should be used as a general guide. Of utmost importance is its practical adaptation by the agencies working in each state to local conditions, facilities and available personnel. Coordination at the state level is necessary to avoid duplication in actual field services, overlapping assignments and travel costs and conflicting or confusing contacts with landowners. The activities of the federal bureaus in this field should be coordinated by the Secretary of Agriculture.

10. Expansion of forest educational and extension programs in agricultural areas to reduce woodland depletion by livestock.

11. Provision by each state for registration of consulting foresters competent to provide advice and service to forest owners and operators.

12. Inclusion of the woodlot in farm planning as an important resource of the farm. Forestry should be an integrated part of the activities of soil conservation districts. Agricultural colleges should offer elementary courses giving prospective farmers, county agents, and other agricultural workers an understanding of the im-



Industrial Department, Seaboard Air Line R. R.

The only way to bridge the gap between present timber growth and use is by more intensive forest management. Young forests such as this must be fully developed and protected

portance of woodlands in farm economy and some knowledge of their management. The participation of vocational agricultural teachers in instruction on farm forest management should be encouraged.

13. Aggressive and persistent campaigns by forest owners themselves, forest industries and trade associations to extend improved forest practices and sustained-yield management. Forest industries which buy logs or pulpwood from woodland owners or contractors should, as a procurement policy, instruct their suppliers in good forest practice.

14. Advice and assistance by federal, state and local educational or industrial agencies to the smaller conversion plants in wood-using industries, commonly unable to employ adequate technical assistance.

Since two-thirds of all forest land in the country is in private ownership, practical education of forest owners and operators is the key to increased production of wood. Over four million owners of small forest properties control 57 percent of the commercial forest land in the United States. Ninety percent of the present cutting upon such lands is unsatisfactory. The educational drive should include also the larger forest holdings on which 60 percent of the areas currently lumbered is not being cut in accordance with good forestry practice.

Control of Destructive Practices

15. Requirements by state law that forest owners avoid unnecessary destruction of growing stock and young growth and follow practices that will maintain continuous forest production on lands not to be devoted to other uses.

To stop forest destruction, reliance should not be placed solely upon voluntary and cooperative action. Statutory minimum requirements are necessary even though regulation alone cannot be expected to result in intensive forest management. Where they are well understood by forest owners and their communities, public controls over destructive cutting are a powerful aid to education.

Needed controls should be developed state-by-state as local conditions and forest practices require. Painstaking discussion and explanation of proposed controls with the forest owners affected are essential in initiating such measures. The assistance to forest owners recommended in this program will promote compliance with required cutting practices.

The record of federal efforts to enforce various regulatory laws in the absence of general popular support does not warrant the assumption that a federal forest harvesting law would accomplish the results desired. We should rather work from the ground up.

The present situation demands that all states recognize their responsibility and opportunity for action.

Forest Planting

16. Expansion of tree planting activities sufficient to restore non-restocking and poorly stocked forest land to productivity within a reasonable time or to introduce more desirable species, with the specific objective of planting not less than 20 million acres in the next 12 years. The cooperative program under Section 4 of the Clarke-McNary Act should include non-farm as well as farm land. State and federal appropriations for the production of planting stock should be greatly increased.

Stock distributed from public nurseries should be limited to plantings for forest products, wildlife food and cover, watersheds, erosion control, and windbreaks or shelterbelts.

There are approximately 73 million acres of poorly stocked and deforested areas, and 20 million acres more or less of marginal farm lands where planting for soil conservation and wood production is needed. A large percentage of these lands lies close to areas of largest populations and forest product demands. The highest economic use of such areas is timber growing.

There is a critical shortage of planting stock in all sections of the country. The problem of forest planting should be approached with special public assistance to small owners. Increased planting activities are also important on publicly owned lands and on industrial lands where necessary to maintain full production of desirable species.

Planting on the scale recommended will create new wealth for the nation and hasten the balancing of the forest budget.

Forest Taxation

17. State action where necessary to relieve forest owners from disproportionate burdens now imposed on forest lands by the general property tax and other state or local taxes.

18. Amendment of inheritance and estate tax laws to permit the payment of such taxes on forest properties in installments over a reasonable period of years.

The general property tax, if strictly applied, imposes an inequitable burden on forest properties with a deferred yield, such as cut-over lands, immature stands of trees and forest plantations. Inefficient administration of the tax and high costs of local government in relation to taxable values may also impose a burden that discourages the practice of forestry in mature as well as immature stands. Special taxes, for such purposes as the construction of dikes, drainage ditches and other improvements, may have a similar deterrent effect. Wherever any of these conditions exist, the general property tax should be modified in its application to forest properties, as, for example, by the deferred timber tax or the combined land and yield tax.

Present requirements for paying federal estate and state inheritance taxes are definite drawbacks to sustained-yield operations. Times of payment should permit accumulating necessary funds without forcing liquidation of forest properties by the necessity of meeting the tax in one payment.

Forest and Wood-Use Research

19. More and better coordinated research in timber growing and harvesting and in the use and processing of wood. The federal and state governments, educational

institutions and private operators should all participate in coordinating their research programs, identifying the most urgent problems and unifying efforts for their solution.

Greatly increased effort should be devoted to getting the results of research into actual use or practical test by operators.

The higher values for forest products created by the war have opened opportunities for intensive timber growing and use far beyond any heretofore economically possible. Forest industry is ready for rapid parallel advances in these fields. There is greater need for applied research to meet current requirements than at any previous period of American forestry.

Special emphasis should be placed on finding outlets to reduce the large volume of material now unused such as low-value species, cull trees and logs and small trees cut to improve the remaining forest.

With the maximum attainable coordination between different programs and agencies, research should be a main feature of the overall national effort in postwar forestry.

Forest Credit and Insurance

20. Long-term forest credit and insurance facilities, to encourage intensive management of woodlands and continuous production of timber.

These aids to the financing and security of long-term investments in timber growing have long been under study. Specific plans are now under consideration by the Farm Credit Administration and by private agencies. The present higher values of forest products and forest-growing lands and the generally reduced losses from forest fires make these services more feasible than ever before. They are needed as practical business aids to full production.

Intensive Timber Production

21. Rapid extension of more intensive forest management practices on all lands devoted primarily to timber production. Such practices include:

(a) Progressive construction of access roads into commercial areas of virgin timber to provide better protection, utilize over-ripe trees and thereby increase rate of growth.

(b) Extension of public timber sales or private logging into areas yet undeveloped so as to put all commercial forest lands into actual sustained production as rapidly as possible.

(c) General use of thinnings and improvement cuttings to forestall mortality losses and increase growth, and of harvesting methods that insure a satisfactory new crop.

The greatest need for increased forest growth is in trees of sawtimber size. The present annual sawtimber growth is estimated at 36 billion board feet. The current growing stock is capable of sustaining a cut of 44 billion board feet of sawtimber annually if the best of currently known methods of stand improvement, harvesting and utilization are promptly and generally applied. The present growth of 36 billion feet ultimately can be doubled under intensive forest management.

The forest product values established by the war warrant more intensive methods of timber cropping running parallel with the opportunities for expansion in wood utilization. The only way to bridge the gap between present timber growth and use is by more intensive forest management, including protection, tree planting and production practices. A considerable period must elapse before this can be accomplished under any forest program.

All classes of forest owners should be encouraged by education and demonstration to participate in this advance in American forestry. But it rests with the administrators of public and private forests and with industries dependent on abundant wood supplies to lead the way.

Cooperative Sustained-Yield Units

22. Continuing action by federal forest agencies to carry out the provisions of cooperative sustained-yield laws, particularly where state or private lands are available for unified management.

23. State legislation, where lacking, to permit placing state forest lands in joint management units with private or federal holdings where desirable.

Federal agencies administering commercial forest lands are authorized by law to make long-term agreements with holders of intermingled or adjacent private or state lands for the unified management of the combined areas. Such agreements are designed to encourage sustained yield in private forests, stabilize local communities and employment, improve living conditions for woods workers, and promote more complete utilization by an assured supply of timber. They are important aids to good forest management and utilization.

Federal, State and Private Forest Ownership

24. A state-by-state study of the desirable relationship between federal, state and private ownership, with a view to mutual understanding and agreement among all classes of forest owners as to further federal and state acquisitions.

25. Designation of a committee by consultation of the groups concerned in each state where federal forest holdings exist, representing the state, private forest owners and industries and the national agencies. The committee should undertake realistic planning and agreement on future public forest acquisition, by either nation or state, in the light of present trends in private management and related conditions. The same committee should provide for the current discussion of live problems in the relations between the several classes of forest owners.

26. Early action by Congress to provide yearly payments on a reasonable and uniform basis to local governmental units in lieu of taxes upon federal lands.

27. Full recognition of wildlife, watershed, recreational and other non-timber values in the acquisition and management of forest lands by public agencies.

The American Forestry Association reaffirms its long-standing support of national forests and their extension to include other forest lands whose management for timber production or other conservation purposes requires federal ownership. As a general rule, however, it should be the national policy to leave in private ownership most forest land having reasonable prospect of effective management thereunder; and to extend state or federal holdings for timber production chiefly in land types not having such prospects or where there is need to complete existing public units. Future federal purchases or exchanges should not block the extension of state forests or of sustained-yield private management.

To give this policy effect, it is desirable for the agencies concerned to study jointly the desirable future pattern of forest ownership in each state; and to reach a common understanding as to future public acquisitions.

Federal forest ownership is involved in the long disputed issue of compensation to taxing units for public land withdrawals from local tax rolls. Some federal lands make no compensating payments to the state or county. Other classifications pay a fixed proportion of gross receipts. There should be an early equitable settlement of this problem that will give local communities an assured equivalent of current taxes on comparable lands.

Current Forest Inventories

28. Continuation of the forest survey by the U. S. Forest Service; and aggressive action by individual states to intensify the survey within their boundaries.

Fundamental to a satisfactory determination of the progress of a nationwide forestry program is currently reliable information on forest inventory, growth, drain and related data. Such data are also necessary for determining the best use of forest lands and the proper location of forest industries.

Recreational and Esthetic Values

29. Full recognition in forest land administration of the human values inherent in state and national parks and other areas set apart to meet the recreational, cultural and spiritual needs of our people. Provision should be made for their preservation free from any use that will interfere with the complete satisfaction of these needs.

An essential phase of forest land management is the reservation from commercial use of areas which render higher public services through recreation and inspiration. Examples of this type of management are existing state and national parks, national monuments, wilderness areas and wildlife refuges, created to preserve natural, scientific, or historical features for the enjoyment, education and inspiration of all the people.

WHAT OUR FOREST SITUATION IS

The Forest Resource Appraisal by The American Forestry Association, completed in 1946, speaks for itself and should be read by everyone interested in American forests.* This undertaking received the helpful cooperation of the U. S. Forest Service as a part of its own reappraisal and the basic findings of the two agencies are in substantial accord. Looking beyond the statistics of forest acreages, timber volumes and growth rates, the Association draws certain basic conclusions from the appraisal.

America's need for wood and for other forest products and services will remain at a high level. Aside from immediate requirements for domestic industry and other uses, the United States should be prepared to resume substantial foreign trade in forest products and to carry its share in rebuilding the war-shattered countries of Europe and Asia. We should also provide raw materials to sustain the current expansion in the use of cellulose and the new technologies in processing wood.

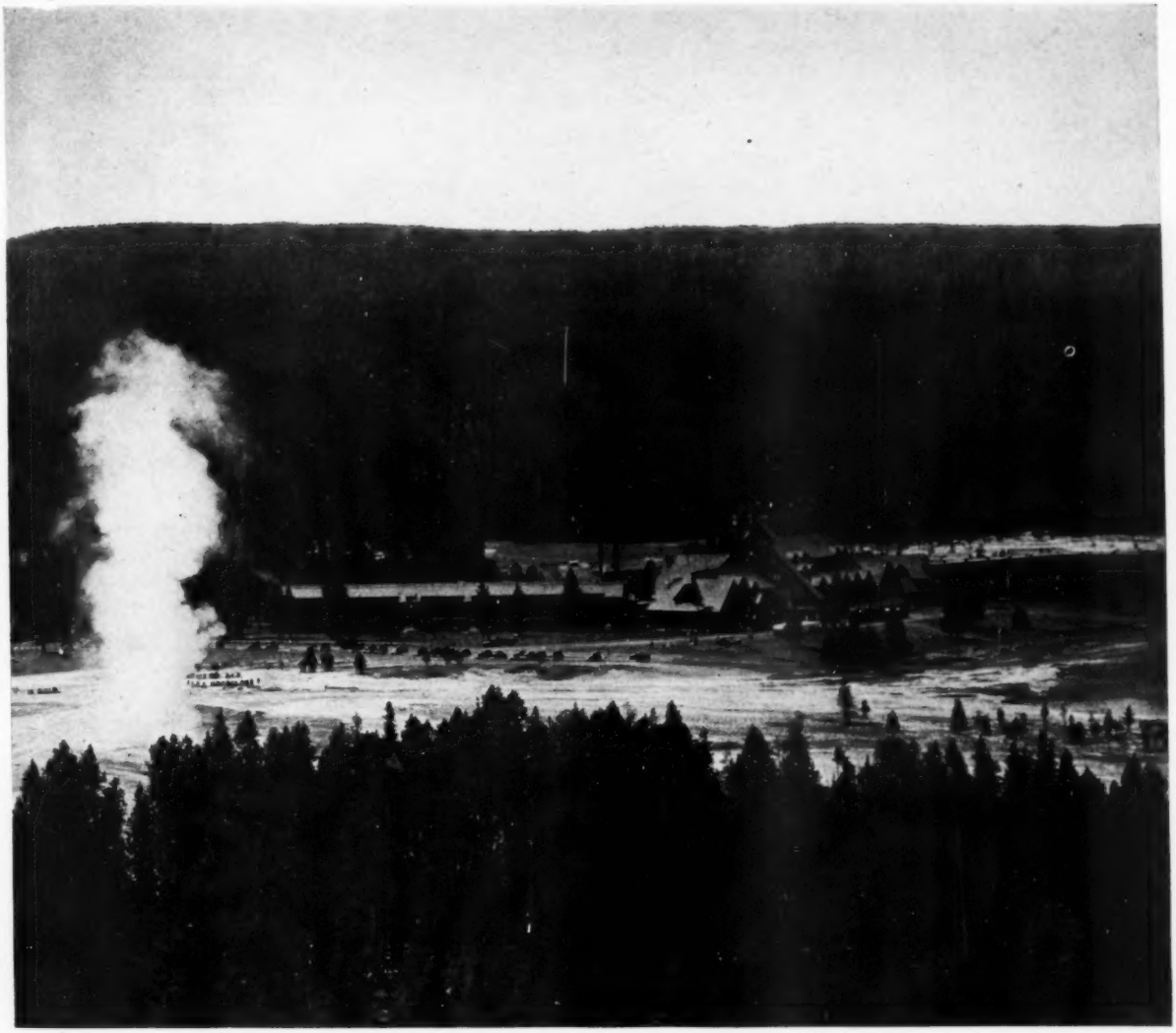
The war and previous drains made heavy inroads upon America's forests but by no means exhausted them. They still contain 1,600 billion board feet of sawtimber. The yearly drain upon them is estimated by the Forest Service at 54 billion feet of sawtimber. This is partially offset by an annual growth of 36 billion board feet. The difficulties in supplying immediately the requirements of reconstruction are due partly to local timber shortages; but also to the lack of access to some remaining stands and to many dislocations and restrictions which have held back production by forest industry.

Deficiencies in the present status of American forestry are evident and challenging. Nearly a third of our private forests are still without organized protection from fire. Tree insects and diseases continue to impose an excessive drain. Present growing stocks are deficient both in quantity and quality. Cutting without regard to future production continues on vast areas of forest land. The annual timber growth is not more than half of that possible under intensive management; and the current ratio of sawtimber drain to growth is as three to two. Widespread ignorance of timber growing practices and economic returns among forest owners and operators continues to be a major handicap to full production. Popular understanding and appreciation of the value of forests to public welfare and national security are widely lacking.

On the other side of the ledger, American forestry has made striking gains, both in current progress and in long-range trends. The accomplishments in forest research are notable. The development of the national forests, the expansion of state forest activities and effective work by other public agencies have substantially strengthened the national situation. All public needs and services are receiving increasing recognition in forest management.

Protection from forest fires has made great headway since the policy of state and federal cooperation was adopted in 1911. During the same period, there has been a gratifying

*Copies of the Report of the Forest Resource Appraisal (price 25 cents) and Proceedings of the American Forest Congress (price $1.50) may be obtained from The American Forestry Association, 919 17th Street, N. W., Washington 6, D. C.



B. L. Brown

An essential phase of forest land management is the reservation from commercial use of areas which render higher public service through recreation and inspiration—Yellowstone National Park, for example

increase in the volume of young timber. For the first time, the Forest Service has found overall growth in cubic feet approximately equal to the overall drain including loss from fire and other natural causes. While the yearly timber growth is deficient in sawtimber and quality woods and is badly distributed geographically in relation to consumption, it shows definite improvement over any previous estimate.

Outstanding among long-range gains is the progress of industrial forestry. This progress is reflected in the market for cut-over lands, in the steady expansion of "tree farms," and in the 40 percent of private forest holdings over 5,000 acres now under good forest practice. This indicates a powerful economic incentive to regrow forests—an incentive that did not exist 20 years ago.

Another encouraging change is the recent trend toward state control of cutting practices, now in course of development in fifteen states.

In spite of these significant advances, a large task remains to attain satisfactory production on all forest lands and especially on those available for economic use.

What the Association Will Do Next

The program presented is essentially a statement of policies. They must be put into effect by public, legislative and administrative actions and by the supporting activities of industries, civic-minded organizations and public-spirited men and women in all fields of American life. To this end, it is proposed:

30. To organize the American Forestry Council through which interested individuals, groups, organizations and agencies will participate actively and collectively in translating this program into concerted national action.

CREATE A BIT OF FOREST

Tap the intimate riches of nature by landscaping your own home—and above all, do the work yourself

By OREN ARNOLD

Landscaping a home is the most delightful part of "building." It happens, usually, after you have moved in. You and your mate have let down; your legal papers have cleared, your furnace is working, your floors gleam, the whole long nerve-wracking business of construction is over—and there out the windows lies virgin ground. It beckons. It says, in effect, "Come now to me, for you and I are akin, and each can enrich the other." In peace of mind and body it will repay you tenfold for every bit of energy you expend in making it bloom. If you re-create on your barren yard a bit of the forest, you will find emotions calming and a glorious sense of goodness pervading your soul.

But you must do much of the labor with your own hands! You cannot tap the intimate riches of nature by just being a boss.

I had to learn that the hard way. In my time I have landscaped three homes. Only one "took." I had the money—for a wonder!—to hire professionals, too, but with my wife Adele I elected to do it largely on our own. Four years have passed since we began. They have been magnificent years. Whenever the worries of war or of living threatened to engulf, we went outside with shovel and hoe. We'd drive not to the local nurseryman's fine display, but to the greatest display of all—the wild free hills. Back from the road, on a friend's property, we would uproot a seedling, or a sapling, choosing a spot likely to be too crowded in normal forest life. This we would bring to our yard—and *set out according to a pre-arranged plan.* We discovered that the very humbling act of handling it is a thing to be cherished. We learned that plants are like children; tender, beautiful, exalting, responsive, if they are given a reasonable amount of love and care.

Hastily I add that we have no bone to pick with the nurseryman, who in our case is close friend enough to dance and play rummy in our home. My point is that we did not *lean* on him. So many homemakers do; so many just hire a nurseryman to set out whatever he thinks best. He will do his best, but he will of necessity do it coldly. Only you can sense what you really need around your home. Only God can make a tree, and only you can love it. If this somewhat poetic approach to landscaping be unconventional, it is also powerful. Use your nurseryman, then, as a source of supply if you must, but never let him do all of the work nor much of the thinking.

I referred above to a pre-arranged plan. Adele and I found it highly advantageous — and pleasurable for months in advance—to draw a scale map of our quarter acre and begin "planting" with colored crayons. Before the lot was even cleared for building, we had a picture of the finished home and of every tree, vine, shrub and flower on it as of about five years ahead, an aerial view in full colors.

"Our berry bush"—a bank of white in the spring and a mass of red in fall

"A lemon tree on the west, in front of Judy's room," Adele suggested, years ago.

It is there today. Judy, our oldest, went through high school watching that tree mature out her window. When she had six weeks in bed with pneumonia, the lemon, of all things, was the most comforting, for its foliage is eternally life-giving and lovely and cheerful green. And fruit? Adele makes the world's most marvelous lemon pie (without sugar, but with a certain sweetened condensed milk!) tasted this side of paradise. Lemon sherbet has become a summer staple in our family. This tree bore the second year. It is higher than the roof now, and is loaded with fruit. We did not get it from the wilds—we bought it from Bill Norman—because that was the only way, but we planted it, we guarded it, we covered it from frost when it was a tenderling, we nudged it with periodic shots of chemicals and manure. In short, it is ours, and we love it.

You can not have a lemon, you say. You do not live in the sunny Southwest.

No matter. Adele and I wish we might have an apple tree. Most likely you can. An apple, of fantastic beauty in spring, and of rich red fruit in fall. It is traditional, and grand. We cannot grow an apple. Nature has, wonderfully, balanced those things. Oranges in our yard, surely, but something as priceless in yours. Read up on this. Your state university or agricultural college has free and authentic information, or even your Bill Norman has, whoever he might be.

We went to the forest again for a "berry bush." Several cuttings destroyed nothing in the wilds, but carried some of the beauty to new surroundings. We did not find them on our southern Arizona desert, but in one of the great forests that adorn the northern and higher portions of our state. I remember that a buck and four does streaked off through the pines when we first spotted those wild berries, and that a mountain lion crawled up a rock cliff when we went back in proper season to get the cuttings. Bill Norman could have supplied the plants, I am sure, for about four dollars. Not for four thousand could he have supplied the lion and the deer, the high altitude, the forest fragrance, the exercise and inspiriting "feel" of thin mountain air, the getting-away-from-it-all back in my office. One of these days I intend to ask Bill for the name of those wild berries, which bloom with a snowbank of white in spring and turn into masses of crimson with the first frost. If I think of it, that is. I don't really care. I am no scientific naturalist, concerned with technical names and pedigrees. "Our berry bushes," is name enough for my wife and me, with emphasis on the "our."

We have a patio. The east wing is our garage, backed by a room for the grandpappy of our family, with a log porch. The west wing is a bedroom, with a log stairway from the patio to an upper room which is my sanctum, where I write and think and dream and make such living as I can. This patio was utterly barren when we moved in. Today it is a place of rare beauty.

One of those berry bushes is lush there now. A gardenia behind the stair had nearly 600 blossoms last May—its third year. We carted corsages all over Phoenix, our home town, to give to friends—I am sure local florists came to hate us! There is a dwarf pomegranate and a bed of violets. And, over all, like a benevolent guardian from the heat of our desert sun, is Our Tree.

It is, I think, a male mulberry. The forest that spawned it offered so many seedlings that spring, and we never could name them all. Over the years we had watched the parent tree here. It had swift growth, big beautiful leaves, and dense shade. It was a glory in budding, for the buds came on long whiplike limbs of silver, and it "shaped" like the umbrella we wanted it to be. When the first frost struck in fall, every leaf dropped in 10 days! Some trees dribble their leaves into January. Not this one. It began its hibernation instantly, and let all the welcome autumn and winter sunshine into the patio, just as its parent had done in the forest.

I'm not sure that you will want a mulberry, or can grow it where you live. No matter; some tree will serve your purpose. Think ahead. Do you want an evergreen in this particular spot? The word "evergreen" lures too many people; they regard it as a synonym for superiority, thinking that to have a green thing even in winter is wonderful. It is, but it isn't necessarily sensible. Sun itself is wonderful, and kind. And the tree that sheds its leaves is a finer symbol. It reminds us each year of the greatest Promise on earth, the assurance of Resurrection.

As I sit now at my typewriter, I

After the snows have gone, the forest may provide hardy seedlings for transplanting in your garden—with the owner's permission

can reach back and touch the green hands of Our Tree. It has come from a tender sapling no thicker than a hoe handle, to a trunk six inches thick and a spread of 25 feet. The limbs are indeed like friendly green hands reaching through my upstairs windows. Other arms extend over the stair landing outside my door. When I am fagged, I like to go out there and sit awhile. Whisperings of the ages come to me there in the gentle quaking of the leaves. I wish I might tell everyone how to commune with trees, how to tune in on what they have to say, what precious wisdoms they have to offer. It is not to be done impulsively, for all of nature has a conception of time different from ours; it is to be courted slowly, quietly. Age has little to do with it, for my 11-year-old Rosemary, normally bubbling with energy, will sit under this tree for an hour and just stare at its beauty; and one day I asked my five-year-old Gail, who was abnormally quiet except for a faint humming, what she was doing up in the mulberry foliage. "I'm just singing with the leaves," she replied.

Our mulberry bears no fruit (never plant a female mulberry unless in a chicken yard, for its fruit will stain everything). Yet somehow nature takes care of that, too; the bright red cardinals seem to love it, and their living spots of color adorn it the summer long. Mocking birds swing there, and half a dozen other species whose names I can never remember. I am convinced that only a genius can remember the names of the wild things, but surely the humblest of us can enjoy them all.

Our Tree lacks the crimson and gold that trees in higher altitudes can show in autumn. I marvel that more people up North don't plant sugar maples. I can drive 120 miles from my door, to the top of Pinal Mountail near Globe, Arizona, and look down on crimson maples by the hundreds of acres. It is a pilgrimage that Adele and I make each October. Among them are aspen trees, the brilliant "quakies" that preen themselves and tremble and sway for us in a pride that is wholly justifiable. Our Rosemary says that they are the source of all things golden, and perhaps they really are. Yet at our desert home we can grow neither maples nor aspen; our balance is the citrus and the cactus, the oleanders and winter roses. The mulberry, I am told, is more versatile, or adaptable, as human beings are. Which is one more reason why we in Phoenix love it.

The business of falling leaves is a matter for philosophy, too. Over the centuries artists and others have made much of leaf-raking time. Surely there are seasons, and streets, where the smudge of neighborhood smoke throws a pall over any poetic concepts. I object. I am not one of those too-tidy souls who eternally burn leaves. I do again as nature does—put them back into the soil, for fertilizer. It pays tremendous dividends. It makes flowers larger, stronger. It makes trees grow faster. And—says I with enthusiasm—it avoids a lot of raking work.

To me, leaves on the ground are not an abomination. Leaves are ornamental even after they fall. I like the rustle of them under foot. Brown, they harmonize with the lingering grass-green of summer, add a new if temporary pattern to the carpet of our lawn. Paper, trash, junk—that's another matter, but just fallen leaves —let them lie! Wait until all have fallen, and until rain or snow begins to melt them; then rake and haul away. If you can pack them into a big hole under your favorite tree (well out from the trunk, mind you) and cover with a foot of soil, you will be abundantly repaid. From them the priceless topsoil of the forest is made.

In our yard (as perhaps in yours) children come to play. This is perfection itself, a thing to be ardently desired and courted. Therefore, we landscaped with children as well as ourselves in mind. Two fast-growing eucalyptus trees are so stationed as to furnish shade for a sandpile. One serves doubly; it screens off a power pole in the alley, viewed from the patio where we grownups sit of an evening.

The grapefruit, lime, oranges and tangerines are banked in one back corner—evergreen and beautiful, and productive. Adele kept books to learn that our family consumes about $75 worth of citrus fruit in a season. Beginning this year, we produce our own, and soon will have much to give away or, if necessary, to sell. The same can be done with peach trees, apples, pears, pecans, walnuts. My point is, that for family landscaping, so-called "ornamentals" can be productive as well. Our children and their little guests will now forever have free tangerines within arms reach, as they set up doll houses or forts or whatever in the imagery of childhood. Could they grow up with a finer memory? Could you do more for your children than insure them a fruit tree from which to gather goodies, on their own?

We allocate our trees to some of the children, too. "This orange, Rosemary, is yours," we say. "Cultivate it and guard it, and watch it be kind to you in turn." A neighbor boy was destructive. Not mean, but mischievous. He destroyed some young plantings of ours, through carelessness. One day I collared him, gently. "Glen Lee," said I, "this persimmon will bear the most delicious fruit imaginable, by the time you are 12, if you help it." He agreed to help it. It was a tree that he had broken down once. Last summer I saw him wallop another kid for running into that tree. He concluded with quite a lecture! It was *his* tree. To be guarded, and enjoyed. Too few children have trees, and it is our fault. We have a friend who goes farther; he names trees, and donates them by name to his children. I wish I had thought of that. Maybe I can use it yet; maybe you can, too.

When you create your bit of forest, I'd say start with one specific Tree in mind. I capitalize it here because it is sacred. It is a Christmas Tree. If at all possible, go to the wild woodland for a sapling, an evergreen this time. No matter much what kind; a fir is traditional, or a holly, or spruce or pine. On our desert vastness, however, many a home knows no Christmas Tree beyond a cactus. Again it is a matter of philosophy and sentiment rather than of botany. But plant a Tree, near your front door, preferably within reach of an electric outlet for Christmas lighting. And, come Christmas, light it! Decorate it with wind-proof, rain-proof baubles—bright tin cans scissored into pretty shapes cost nothing and are ideal, twisting and twinkling in the breeze. Put clear varnish on them to prevent rust. Paint some in gay colors. Odd lengths of rope, preferably old and frayed, can be dipped or sprayed with paint for festooning. Use your imagination, but at any cost have a living Christmas Tree.

Use your imagination, indeed, whenever and wherever you encounter nature. The very forest is a nursery for the human mind. Let it nurture you and those you love. In the long run, I do not think the main purpose of a forest is to supply lumber and firewood. Its highest aim, surely, is to supply beauty, and inspiration, and hope. Not all of us can live in a forest now (as I think God originally intended) but most of us can cling to its teachings. Most of us can re-create a bit of it in field or yard or lawn, or in a penthouse windowbox, for our very own.

Highlights of AFA Board Meeting

The Board of Directors of The American Forestry Association, meeting in Washington on January 20 and 21 for the final drafting of a program of American forestry (see page 104), elected Randolph G. Pack of New York, and re-elected William B. Greeley of Washington, active vice-presidents of the Association. Mr. Pack succeeds Karl T. Frederick of New York.

The by-laws of the Association as amended in 1945 provide for the election by the Board of two vice-presidents, in addition to the 21 honorary vice-presidents elected annually by vote of the membership.

A member of the Board since 1943, Mr. Pack is president of the Charles Lathrop Pack Forestry Foundation. Mr. Greeley, a director since 1915, is vice-president of the West Coast Lumbermen's Association. From 1920 to 1928 he served as chief of the U. S. Forest Service.

The Board voiced strong opposition to proposals now being made to break down the government's administration of the national forests and the reserved grazing lands of the public domain. In a resolution aimed at bills introduced in the 80th Congress, the Board reaffirmed the long standing position of the Association in support of the principle of retaining in the federal government broad authority to manage the resources of the national forest and public domain grazing lands in the best public interests from the standpoint of forest and forage growth, protection of watersheds and other services.

The Board favored the Association joining with the Society of American Foresters in requesting the President of the United States to ask the National Academy of Sciences to appoint a committee to make a study of the public lands of the nation.

The directors also agreed to oppose any cuts in federal appropriations which might hinder the effectiveness of the national forestry program.

The Board's major action, of course, was the drafting of a program of forestry for the nation, presented in full elsewhere in this issue. It was approved unanimously by the directors, and submitted to the membership for referendum vote.

Vice-President William B. Greeley

Vice-President Randolph G. Pack

New Directors of the Association—left, Don P. Johnston, North Carolina Forestry Association; center, W. T. White, Seaboard Air Line Railroad; right, Lloyd E. Partain, Curtis Publishing Company

WANTED: 80,000,000 POLES

By HENRY S. KERNAN

A LITTLE more than a century ago Samuel Morse mastered the trick of controlling electric currents along energized wire. Soon thereafter a fantastic web of copper began to spread into the furthest parts of the world, carrying light, speech, and power with instantaneous speed. To a perilous degree modern industrial life hangs upon this thread.

Yet it had but a small part in American rural life until a dozen years ago. And recently some city dwellers, notably in Pittsburgh, experienced what it means to be without electricity. In 1935 all but 11 percent of the nation's farmers knew nothing else. Then came rising farm income and the stimulus of the Rural Electrification Administration to extend cooperative power lines along back roads. Today, 53 percent of American farms have been reached; and the program is being speeded up to meet the greatest demand in history. REA plans call for a million and a half more miles of line during the 10 years ahead. Likewise, the public utilities have budgeted $300,000,000 for new rural power.

Except in urban areas the essential auxiliary of the copper wire is the wooden pole on which it is strung—16 poles a mile for power lines, 40 for telephone lines. In use today are 64 million such poles, an incredible figure even to those who have observed in their travels the regularity with which they border our endless highways. Within the next decade 80 million will be standing. Since a pole lasts about 20 years, an annual replacement of five percent must be calculated. Therefore it is hard to envisage a time when the yearly demand will fall below four to five million, and when they will not be a most ubiquitous feature of the American landscape.

Compared to some wonders that are made from wood, a pole seems a rather simple forest product. Yet just any tree cut to length and put into the ground does not suffice. Each is carefully selected for straightness and taper. Each must be strong, free of defects, and easy to climb. Above all the wood must resist the fungi that cause decay.

For this reason dependence was once placed upon the unsurpassed natural resistance of cedar and chestnut. A virulent blight is destroying the last stands of chestnut; and of all their millions of sprouts, every one is, like Achilles, born to an early death. Cedar can still contribute about a quarter of a million poles each year; but its relative importance is bound to decrease. The large and accessible stands are gone; and growth, being very slow, cannot keep up with demand. Other species must be found and made to serve.

Fortunately, man has been experimenting with wood preservation by chemical treatment for over 200 years. In 1705 a German suggested a specific process; and in 1716 the Province of South Carolina granted

Telephone poles must be strong, straight and free of defects

Sixty-four million telephone and power poles are now in use

Pacific Tel. & Tel. Co.

a patent to Dr. William Crook for the use of tar oil. Two far-reaching inventions were those for using a coal tar product, creosote (1836), and for impregnating wood under pressure (1838). These were first combined in 1865 at a plant in Massachusetts. The process forms the basis of the most successful wood preservation today. Substitutes have been developed, and their use increased since the war due to scarcity of creosote. Zinc chloride is one, pentochlorophenol another. Altogether over 90 percent of all poles used are not naturally resistant, but must first be impregnated with fungicides and thereby made to last 20 years instead of, perhaps, five.

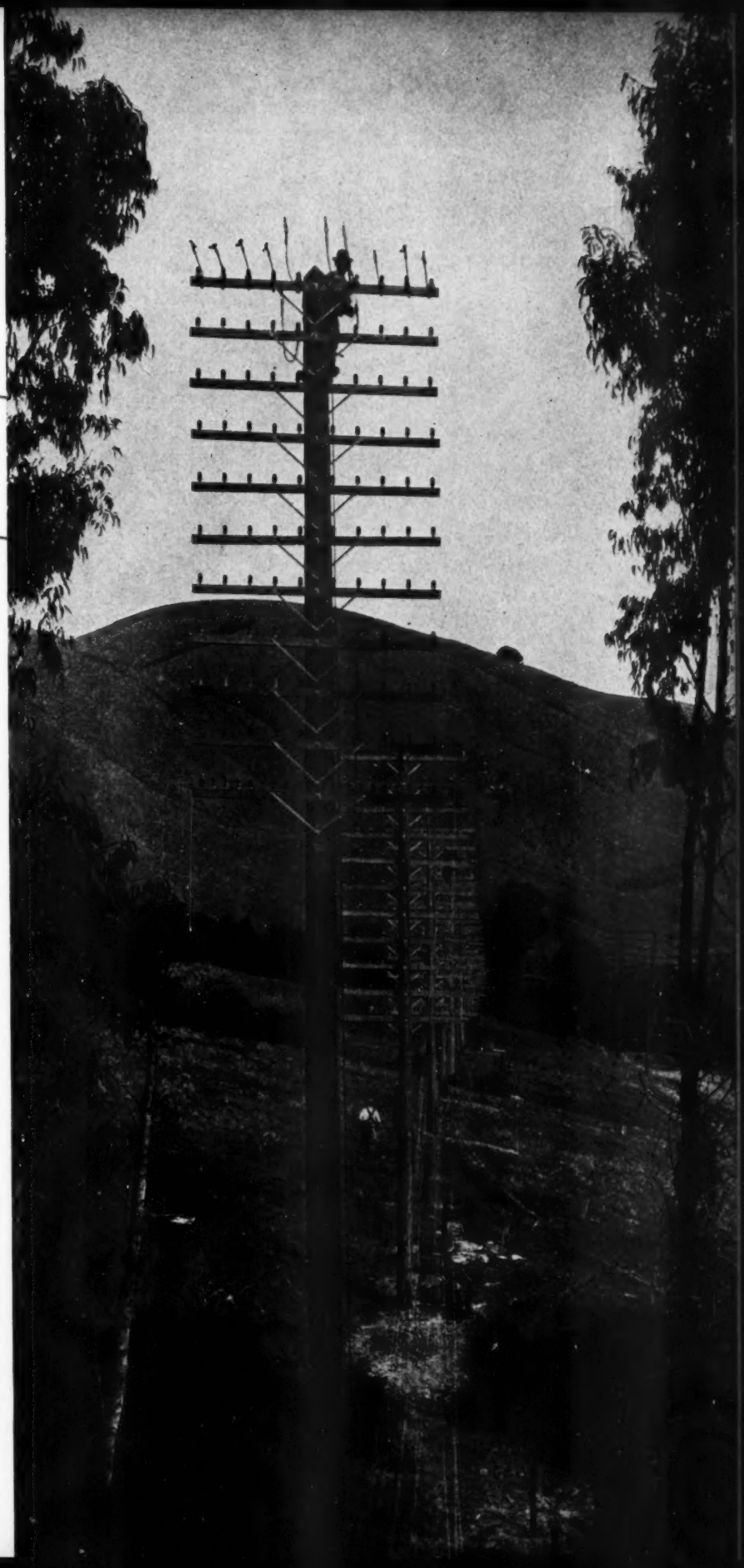
For example, were it not for the ingenuity of chemical engineering, the pole market could not draw upon southern forests where grow the four yellow pines which supply more than 60 percent of the demand. Their wood is readily permeated under pressure; and their boles are straight, clear, and fast-growing. Moreover, they are generally close to treating plants and markets.

On the other hand, the competition for southern pine is notorious. A single 14-inch pine may become a pole, a sawlog, or a crosstie; it may become pulpwood, piling, or fuelwood. In short, everyone is after it.

But given reasonable management and marketing, the southern forest can supply the highest demands made upon it. This is the conclusion reached by the Forest Resource Appraisal of The American Forestry Association. A special estimate of trees suitable for poles shows a total of 437 million in the 11 southern states —far more than will ever be used for this purpose.

There seem to be three major trends affecting the southern woodland. One is the unbalanced drain that has reduced the sawlog volume by 14 percent during the last decade, while the smaller stock held its own and even increased.

Equally important is the widespread tendency of hardwoods to replace pines wherever the two compete. The physiological laws forcing this change are not well understood; but the fact remains that in the scramble of types and species which follows cutting, the pine too often loses out. The rate of this shift is estimated to be about five percent each decade, a figure given more weight



by the large areas involved and the disparity in value between pine and hardwood.

Counterbalancing these trends is the progress in forestry that has brought 30 million acres, a quarter of the southern forest, under organized management within the past 20 years. Interrupted by the war, forestry is now moving forward again as industry and the public enlarge their holdings with the avowed purpose of growing wood. Heretofore industrial management has too often been aimed at the needs of a particular mill. A new concept must evolve. The forest must become a producing unit of its own right, each of whose products is used to best advantage. Only then will the forest owner profit fully and consistently from the higher value of such special products as poles.

Twenty years ago Michigan, Wisconsin and Minnesota were important sources of northern white cedar; and as late as 1939 a sustained supply of half a million poles yearly was expected. This figure has not been realized, and today the pole yards are nearly empty. One reason is that cutting poles in the Lake States is a sideline of logging. During the war poles were by-passed in the rush to keep up with the voracious saw-rigs. In this species, pulpwood does not compete for stumpage but it does for labor; and the extra discrimination required to select poles is something that lumberjacks do not fancy.

The more fundamental reason is simply a lack of suitable trees to cut. Cedar grows slowly, and only in swamps. One hundred and fifty years are needed to grow even a short cedar pole, whereas 50 years will yield a southern pine of equal size. These facts alone assure that the cedar supply will lag.

In the Lake States a more promising species for the years ahead is the jack pine—one of the hard pines. It, too, grows slowly in dense stands, but has a much wider range. Although ragged and knotty, it can be peeled and smoothed by the whirling knives of a rossing machine. However, making jack pine poles constitutes a new industry that must compete with a demand for pulpwood and lumber. So far only northern Minnesota is producing jack pine poles in quantity.

Westward on the Rocky Mountains stand enormously widespread forests of lodgepole pine, a species of excellent size and shape for poles. Moreover, in the semi-arid region on either side of the Rockies it can be used without pressure treatment.

Lodgepole pine has hitherto been little used for any purpose. It does not make good general lumber and the pulpmills are far away. Crossties and mine props have been cut to a limited extent; but not enough to keep up with the growth over the type as a whole. Therefore the number of possible poles is enormous.

Another species brought into use during the current search is the western tamarack. This tree has a straight, clear bole and wood more resistant to decay than pine. But it is more difficult to penetrate with preservatives.

The tamarack, like the lodgepole pine, has a wide range, but much of it is inaccessible. The key to more poles of these species is the $15,000,000 fund set up by Congress for logging roads. This program is aimed at sawlogs, but will help to develop other products as remote mountain stands are cut in man's never-ending search for more wood.

Western redcedar will also be brought upon the market as isolated trees here and there are cut in deep humid draws and creek bottoms. An unsurpassed pole tree, but scattered and slow-growing, its exploitation has always been associated with that of the rapidly disappearing old-growth white pine.

The supply of cedar is limited on the West Coast by the same factors as in the Rocky Mountains. Another source is Alaska. Here cedar is found in a shoreline forest bordering innumerable islands and coastal bays. Poles are skidded from barges; and then rafted to Puget Sound. But costs are high and labor is scarce on this remote and foggy coast. Twenty thousand this year are the most that can be expected.

Actually every species in Washington and Oregon is secondary to Douglasfir, which is proving an excellent pole and emphasizing again its prestige as a source of all timber products. Difficulties are encountered, of course, when a new demand

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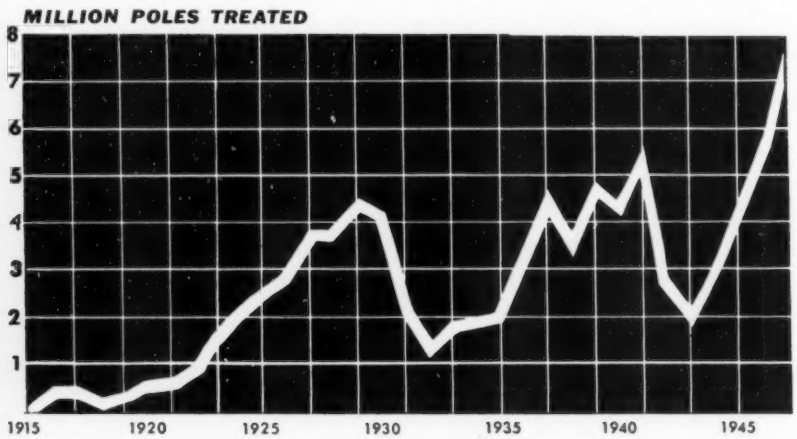
REA

Chemical treating plants must turn out 6,000,000 poles a year to meet demand. Treatment adds fifteen years to the life-span of poles



By ORLO STRUNK, JR.

Academic Angling

The truant officer has little to do when fishing becomes part of the high school course

IN THE near future the afternoon schedule of an average American high school may read something like this: first period, English; second period, algebra; third period, fishing.

Yes, that's right, fishing!

Fishing may soon be an interscholastic sport. In fact, the Activities Association of Dover High School in New Hampshire, has already adopted fishing as a minor sport for which chevrons are to be given out to team members.

Bernie Smith, teacher and coach, is sincere in his desires to have fishing adopted as a school sport. Perhaps other high schools thought of having a piscatorial sport, but it took a man like Bernie Smith to do something about it.

For many years kids have been dodging truant officers just so they could drop a baited hook into the mill race. That, in itself, is proof of the pudding. If all the children like fishing so much, why not teach them the real "art" of good, legal fishing; and, at the same time, throw in a little lesson in patience and satisfaction? Smith thinks it can be done!

After all, recreation is defined as "refreshment of strength or spirit after toil." Getting your face kicked in by a cleated foot or having your anatomical system distorted by a larger anatomical system could hardly meet with this definition.

Football, baseball, basketball are, without a doubt, good American sports, but participation is limited, both physically and by age. But give a fellow a fishing rod, teach him how to outwit a cunning trout, and you've got yourself an all-round first-class sport.

Over a year ago Smith got the idea that some of his pupils in high school might enjoy going fishing with him. A little concealed questioning brought to light two eager, potential anglers—and soon Coach Smith and his first class were raking in A's in the form of fighting, wiggling brook trout.

This first trip proved both successful and prosperous. Needless to say, the students loved it!

Cold weather is not a fishing hindrance as it is with some minor or season sport. On the contrary. The school's growing team went on their second trip in cold December. They fished through the ice with tip-ups, and when the day was through, Mirror Lake was minus some handsome pickerel.

In January the Dover High School Fishing Team started in earnest. They were taught the task of "bobbing," a somewhat difficult form of fishing, and the trout, perch, and cusk all suffered because of it.

Just what does Bernie Smith see in having angling as a sport in high school? Bernie says, "My personal objective in connection with the fishing team is to ignite that spark in every boy who longs for the out-of-doors; not just fishing, but a love for the forests, the brooks and lakes, the birds and the flowers."

If you want a more logical, more business-like reason, it is here, too. Financially and morally every state is suffering from the juvenile delinquent disease. The cure for this disease rests on the shoulders of the public school systems. Each little bit of medicine given to fight juvenile delinquency is a help for future peace and happiness.

The new educational trends lean toward eliminating the summer vacation. The Army and the Navy proved that one can teach faster and better than is now being done. Already these new methods are being used successfully by trade schools. This, plus less working hours for the tradesman, means a great demand will be placed on our recreational facilities. Why not take this extra time and teach students the good practices of conservation? Our national resources and our personal morals would both prosper. Fishing squads are easy to form and are not expensive. A good bit of time is spent indoors making flies, learning to place a plug into the middle of a rubber tire, teaching the history and business of fishing.

Certain days are set aside for making trips to near-by lakes. The Dover Fishing Squad's "classrooms" are Mirror Lake, Grand Bay, Northwood Lake, Merrymeeting Lake, and any other body of water nearby where fish can be found.

The Major Sportsmen's Association of New Hampshire has now publicly approved the plan and urges that fishing be recognized as an extra curricula sport. The kids agree!

The whole thing leaves the truant officer up in the air—or out of a job!

Seeds Away!

Planes rain seed pellets on Arizona desert to test new method of restoring rangeland

By H. H. HENRY

Western Ways

A mounted Indian, holding a flag, marked the ends of each run

IT TOOK a Frenchman to write one of the greatest technical books on the English language—Roget's *Thesaurus;* it took a dentist to produce what may be a cure for one of the greatest agricultural headaches in this country: the encroaching desert. Dr. Lytle S. Adams, retired Seattle dentist with an inventive turn of mind, had traveled through the length and breadth of the West and Southwest. Everywhere he encountered the same discouraging picture—over-grazed range, blighted by erosion.

Observing the vegetation on those sparse thousands of acres, he decided to penetrate the mystery of the plants that were able to propagate their kind in spite of the harsh conditions—exhausted soil, very little water. His observations disclosed that seeds of plants that did germinate, were usually found in the droppings of some herbivorous animal, such as the antelope; or in those of birds and small rodents. And here was the beginning of Dr. Adams' invention. If the seeds were given a protective coating artificially, he reasoned, perhaps they could survive the heat and drought, and eventually change the desert into a fruitful range once more.

After several months of experimentation, Dr. Adams devised a special pellet—a coating of earth, to which was added a small amount of water, fertilizer and an insecticide and ger-

Pea-size pellets of earth contain 10 seeds each

micide to protect the seed from being eaten or destroyed by disease. He tried out his pelletized seed on a single acre, and the success of germination overshadowed his wildest hopes. Ninety percent of all seed came up, and took hold.

Further experiment proved that the best method of making the pellets was from the native earth of the area which was to be reseeded. The best results came from small pellets, about the size of a pea. It was not long before Dr. Adams designed and had custom-built a crude version of a pellet-making machine, which was later improved and manufactured commercially. From then on it was an uphill fight to show that his method would work toward rehabilitating the deserts of Arizona, New Mexico and possibly those of Texas and California.

After much preliminary work, Dr. Adams' cause was defended in Congress by Congressman John R. Murdock of Arizona, who suggested large annual appropriations to reseed by the pellet method millions of acres of western range lands. Large areas could be covered because the seeding was to be done by airplane. By the time the program was to go into operation, Dr. Adams promised to design a special pellet-dispensing apparatus to be placed under the belly of any conventional plane, to do the seeding quickly and in an even pattern.

The pattern developed would place nine pellets to a square yard of land surface, or an average of one pellet for each square foot. With pellets containing about 10 seeds each, this distribution of seed would give a good coverage to the soil, if germination were successful.

After many conferences, the U. S. Department of the Interior agreed to try Dr. Adams' method. It was decided that the denuded lands of the Papago Indian Reservation near Sells, Arizona, would serve as one testing ground. If the seeding experiment was successful there, it could be carried to other overgrazed or eroded areas. Sturdy African Lehmann's love grass was selected as seed.

The ingenious dentist had his pilots use desert side roads as landing and takeoff strips. Portable pellet-making machinery was hauled to each seeding area by truck, and the truck engine used to provide power for the machine. Willing Papago braves volunteered to run it, and help load the pellets into the plane. By this time the pellet machines were per-

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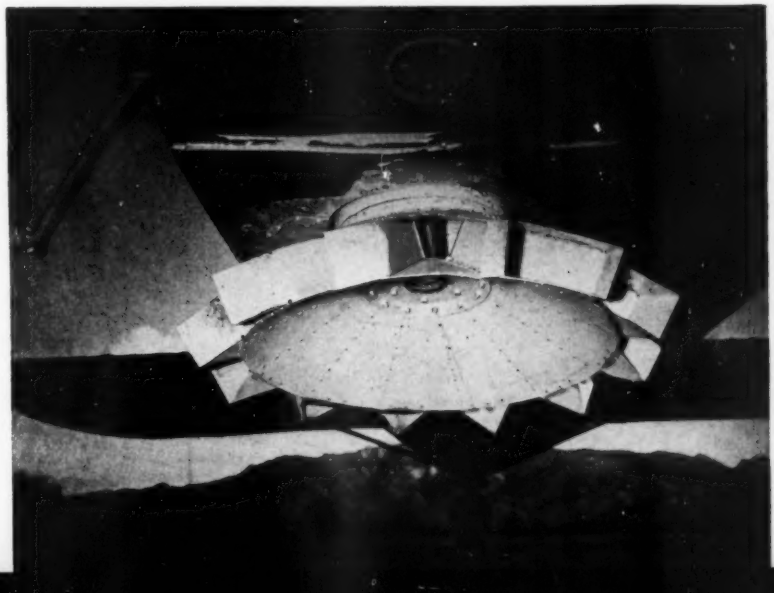
Western Ways

Above—the inventor, Dr. Lytle S. Adams, helps load the pellets into the plane. Nearly 100 tons were thus distributed on the Papago Indian Reservation during June 1946.

Below—a special dispensing apparatus, placed under the belly of the plane, whirls the pellets to the ground in an even pattern—nine to each square yard of land surface



JACKSON FOREST

By ARNOLD F. WALLEN

IT WAS a very wet Mr. Jackson who reined up his horse on the cliff at the mouth of Caspar Creek that January evening in 1861. Beads of moisture glistened on his eyebrows and his heavy beard was as soggy as the verdant growth in the gulch behind him. Back among the redwoods the fog was much thicker than his Vermont duck pond variety. The constant drip, drip of moisture from the giants towering hundreds of feet above him had been the only sound to break the awesome quiet of the dense forest. It was a relief now to hear the waves crashing against California's rugged Mendocino coast.

Jackson viewed with interest the activities around the sawmill being built along the creek. These were the men, Randall and Kelly, with whom he was to be associated. Jackson, owner of lumber yards in Stockton and San Francisco, was seeking a reliable source of lumber. He had seen the material in the raw during his last two days' journey. Billions of feet of redwood timber for the mere filing of a claim! Timberland was easily acquired through the Homestead Act, the Timber and Stone Act and purchase of school script. Timber claims could be purchased for two to three dollars an acre, ten dollars an acre for choice claims being considered exorbitant.

What Jackson and his associates paid for their tract in the Caspar Creek basin is not known. But early this year nearly 47,000 acres were sold to the State of California for $1,499,000, the first important acquisition under the new act signed by Governor Earl Warren in 1945, authorizing the state to acquire and manage forest lands.

As California's newest and largest state forest, the Caspar lands, still containing considerable old growth and more than 11,000 acres of young timber of sawlog size, will serve as a unit to demonstrate sound, economical forest management.

In 1862, with the mill completed and in operation, Jacob Green Jackson, whose motto was "Walk Humbly —Deal Justly," bought out Randall and Kelly. The single circular saw mill had a capacity of 8,000 to 10,000 feet of lumber a day. This was increased to 25,000 feet by the addition of a double circular head saw, a "muley saw" and a single circular "pony saw."

Early logging in the Caspar Creek basin was confined to an area within shouting distance of the creeks. Imagine moving by hand the huge redwood logs, many twelve feet in diameter!

The first woodsmen to come to Caspar were "State of Maine men." Here it was that the term "chopper" came to be used for timber fallers. The ability of a chopper was measured by the smoothness of his undercut and length of tree he saved when it fell.

The choppers erected scaffolds elevating them 10 to 25 feet above the ground around the larger redwoods. It was necessary to get above the butt swell and the defective "goose pens" which only impeded logging.

Usually two men worked on the tree at the same time, one chopping right-handed and the other left-handed. It was here in the redwoods that the State of Maine men developed the long-handled double-bitted ax still in use.

After the tree was felled it was peeled and the bark and brush burned before the logs were bucked with a cross-cut saw. Then the terrific struggle of man against the almost immovable logs would begin. "Jack screws" were used by the woodsmen to roll a log over and over downhill until it reached the creek. During the winter months of high water the logs were easily floated to the mill at the mouth of Caspar Creek. In the summer dry season it was often necessary to construct a series of dams and float the logs downstream.

In the '80's "springboards" were developed and the scaffold was no longer used. The springboards were generally made of Douglasfir two to three inches thick and five to six feet long with an iron shoe on one end. A notch was chopped into

Log dump along Big River in the '80's. During high water the "big sticks" were floated to the mill

Carpenter

In the '90's the steam era came of age and the "bull donkey" drove the bull teams out of Caspar basin

Miles Bros.

Miles Bros.

The first woodsmen to come to Caspar were "State of Maine men." Here a fallen giant is being "peeled"

Miles Bros.

After removal of bark the area was burned—then began man's struggle against almost immovable logs

the tree and the springboard was inserted, the iron shoe sinking into the wood. The choppers became quite "catty" on these boards and would work all day 20 feet in the air as unconcerned as if they were on the ground.

When the logs reached the mill at the mouth of Caspar Creek they were enclosed by a log boom stretched across the creek and used as needed. A log was put on the log cart and hauled dripping up the incline into the mill. If a 10-foot giant too large for the double-circular saw, it was ripped in two by the muley saw, a sturdy cross-cut which worked with an up and down motion. After being split, the log was placed on the carriage and sawed into slabs on the double-circular head saw. The slabs then passed on to the pony saw where they were sawed into lumber.

This lumber, mostly rough green, tongue and groove and rustic siding, was loaded on barges in the creek at the rear of the mill, then towed out to the sailing schooner anchored in the Caspar "Dog Hole," as the landings along the Mendocino coast were often called.

The crews of the coastal lumber schooners were generally Scandinavians, and the fleet was often referred to as the "Scandinavian navy." J. G. Jackson's first lumber schooner was a sailing vessel of 200 tons burden called the *Maxim*.

Lumber from the Caspar Lumber Company reached market by schooner until the early 1930's.

With the advent of ox-teams in the early '70's, logging became more mobile and the side gulches as well as the creeks were logged. Large ox-teams were used, 10 or 12 yoke of oxen being required to draw a turn of logs to the log dump. The log chain passed between the "critters" and was divided into two parts near the end. Two sharp dogs, fastened to the chain, were driven into either side of the log, well down on the under side. Then with a mighty heave, a grunt, and a "whoa haw," the log was hauled to a skid trail and down to the dump.

The "water slinger," often a Chinese, ran ahead of the oxen and wet the trail with water so the logs would slide more easily.

A stream bottom served as the log dump where logs were left to wait for high water.

Oxen were used until the late '70's when these prosaic beasts were supplanted by the more unruly but more powerful "bull teams." With the bulls came the picturesque "bull-whacker," whose chief claim to fame was his ability to handle bulls and his vast storehouse of cuss words.

Early in 1876 the first railroad was built from Caspar to Jughandle Creek—a railroad without a locomotive. The rails were made of oak two-by-fours laid on split redwood ties. The log cars were hauled to the Jackson mill five miles away by teams of horses or mules. In the fall of '76, the first locomotive, descriptively called "Old Dirt and Greasy," started hauling logs.

The "Pansy," as her previous owners had poetically emblazoned in bright red paint on the side of her cab, was built in San Francisco in 1869 by the Vulcan Iron Works. The engine may now be seen in the Cliff House in San Francisco.

In 1883, J. G. Jackson Company was incorporated as the Caspar Lumber Company. Jackson became the first president and principal stockholder of the new corporation.

Steam hit the woods during the late '80's when C. E. De Camp, old J. G. Jackson's grandson, introduced the first "steam donkey." The "donkey," an antique affair used for driving piling in San Francisco Bay, arrived in the woods complete with 800 feet of manila rope. This was soon discarded, however, as all the little donkey could do was stretch the rope when fastened to a log. A new wire rope did not help the efficiency of the donkey and it was put aside in favor of the bulls.

In 1890 the first "Dolbeer" with an upright spool was used. With the Dolbeer it was necessary to have a "spooltender" lay the cable straight on the spool as it was hauled in or paid out. The Dolbeer proved very successful.

In 1893 the steam era came of age and the "bull donkey," with self-laying horizontal spools, was introduced. It was no longer necessary to haul the cable out to the logs by hand; the machine age was here!

The "whistlepunk" took the place

(*Turn to page* 142)

The story of California's newest—and largest—state forest, dating back to 1861, is a vivid chapter in redwood logging history

REPORT ON DUTCH ELM DISEASE

A JANUARY round-up of information on the progress in the control of the Dutch elm disease shows little hope for early success on a wide scale. Owners of individual trees, however, may see a slight ray of hope in the effectiveness of the newer insecticides for controlling the bark beetles which transmit the disease. But despite federal and state efforts to develop new methods of attack, the disease continues to spread, occurring in widening areas in 13 states.

Further complicating the control program is the presence of the phloem necrosis disease of elms which produces conditions favorable to the development of the European and native bark beetles, the carriers of the disease.

Control is very difficult to attain through measures such as regulations and quarantines, although they have proved to be retardants to more general spread of the disease. Since the beetles winter under the bark, the federal quarantine prohibits the transportation of unpeeled logs from the quarantined area. However, revision of the quarantine has lagged behind observable spread of the disease. In fact, there is now twice as much infected area outside the quarantine as is included.

One of the factors in this lag is the occurrence in Ohio and West Virginia of the phloem necrosis disease along with the Dutch elm disease. Since there is uncertainty concerning the carriers of phloem necrosis, it does not appear practicable to adopt quarantine measures for the one disease while the other is not being similarly attacked.

Failure of the quarantine to keep up with the known disease area was of little consequence until the summer of 1943. Up to that time, the states and the federal government cooperated in removing all diseased trees, either within or without the regulated area. But the Department of Agriculture Appropriations Act for the fiscal year 1944 specifically prohibited further removal of trees at federal expense.

By the use of insecticides for controlling the bark beetles, it has been possible on experimental plots over the past two years to give almost complete protection from the disease to individual healthy elm trees. These experiments are being continued to determine whether it is feasible for individual property owners or communities to protect their elms for indefinite periods.

Another method of approach to prevention or control of the disease is the use of chemicals such as oxyquinoline benzoate. This, when forced into the ground around the roots of the trees has decreased the visible symptoms of diseased trees. Results so far, however, are too inconclusive to warrant the widespread use of this method.

The research is going on. In fact, greater emphasis on research is to be expected. In the meantime, and until better methods of control are found or strains of elm are developed with greater resistance to the disease, sanitation appears to be the most effective method of preventing or retarding its spread.

Once an elm is infected, the diseased parts or more often the whole tree must be removed, stripped of bark, and the bark burned. This will help prevent a secondary infection and the spread of the disease to healthy trees.

As the control methods are being developed and improved, the all-important work of scouting to determine the extent and degree of the disease's occurrence must be carried on.

According to E. G. Brewer, of the Dutch Elm Control Office, Bureau of Entomology and Plant Quarantine, in East Orange, New Jersey, three types of scouting were carried on in 1946. Where state or local control work was under way, the federal bureau performed as thorough a scouting job as possible with the limited funds available. It was only in those sections that scouting even approached

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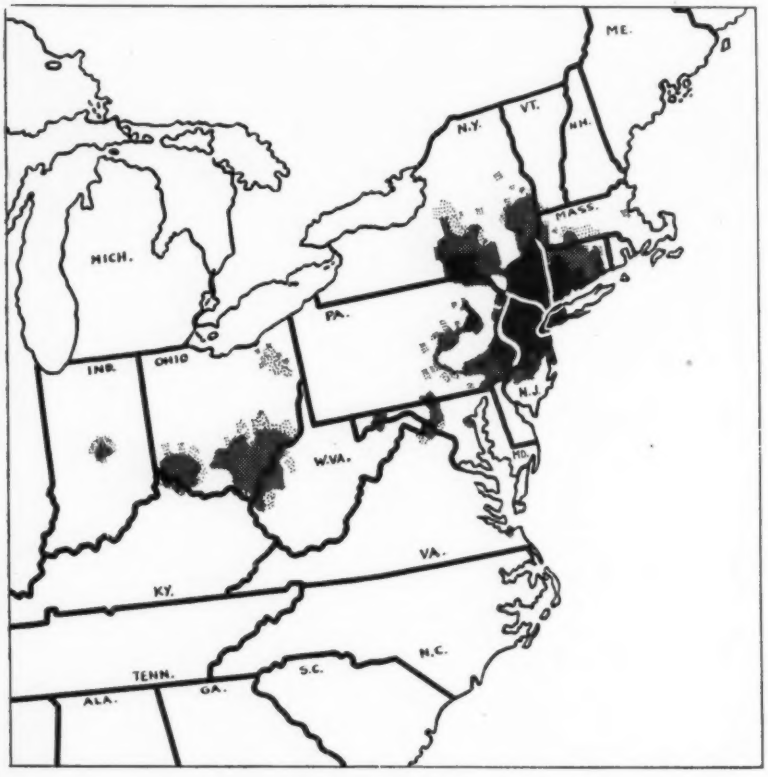
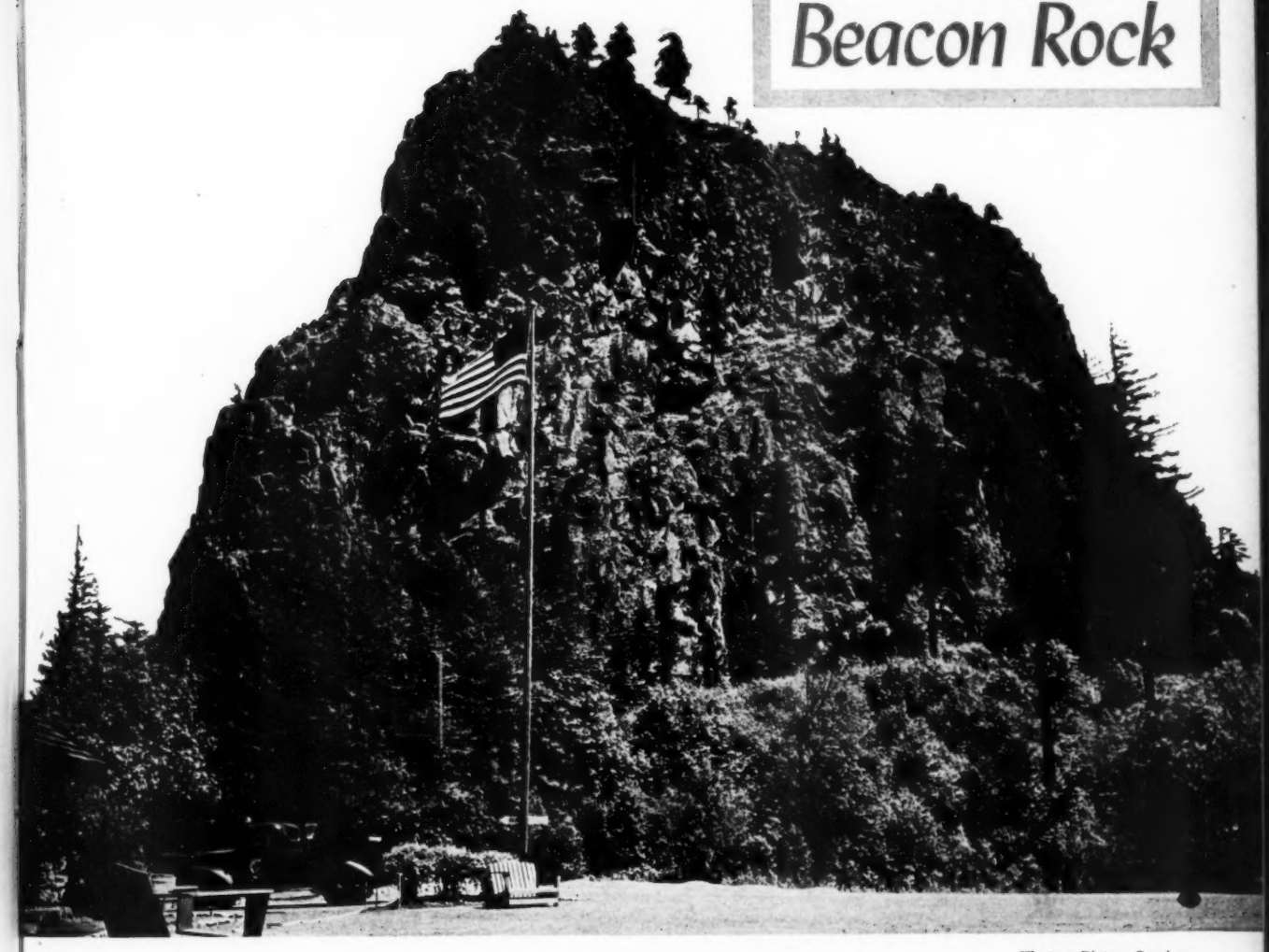


DUTCH ELM DISEASE AREA

Area quarantined in October 1941, shown in *black* (11,617 square miles); diseased area found to January 1946 (23,659 square miles) shown in *cross hatch*; diseased area to November 1946, shown in *dots*

Beacon Rock



Western Picture Service

By CLARA GALBRAITH KNOLL

DIVIDING the states of Oregon and Washington, the Columbia River has cut a huge gorge through the Cascade Mountains. The Columbia River gorge is well known for its wild rugged beauty, its high mountains and cliffs, its swift running streams and waterfalls, its dense forests, as well as for its man-made wonder—Bonneville Dam.

In the gorge nothing is moderate. When the wind blows—and it usually does—it rages through the gap with wild fury. It can change its course without hesitating a minute. One moment the waves of the backwater of the dam are rolling in from the east, and in less than five minutes they may be rushing in with equal vigor from the west. When it is hot it is very hot; when it rains it pours. And in the gorge, standing somewhat apart from the surrounding hills, is a mountain of stone. With one exception, the gorge is the only place in the world where such an immense rock stands. That exception is the well known Rock of Gibraltar.

Beacon Rock is a monolith — a block of solid stone—standing nearly 900 feet high with a base covering about 17 acres. It is of basalt formation. In the old days it was often referred to as "Castle Rock," for from a distance it resembles a huge castle with its almost straight up-and-down cliff walls, its several pointed top, and the few struggling trees and shrubs which remind one of vines covering ancient castle walls.

Beacon Rock is on the north bank, the Washington side, of the Columbia. It is on the Evergreen Highway, very easily accessible, between the highway and the river. But in the gorge where the growth is dense and trees are tall, where the road is winding, and surrounding mountains overshadowing, it is almost possible to drive by without realizing that only the Rock of Gibraltar is larger. But from the Columbia River Highway on the Oregon side, one can look across the river and get a full view of the rock in all its magnificence.

Between 1915 and 1918, Henry Biddle built a pathway to the top of Beacon Rock. Very little is known about this man who contributed so much to advance the wonders of the Columbia gorge. In 1935 his heirs succeeded in having this rock and

(*Turn to page* 144)

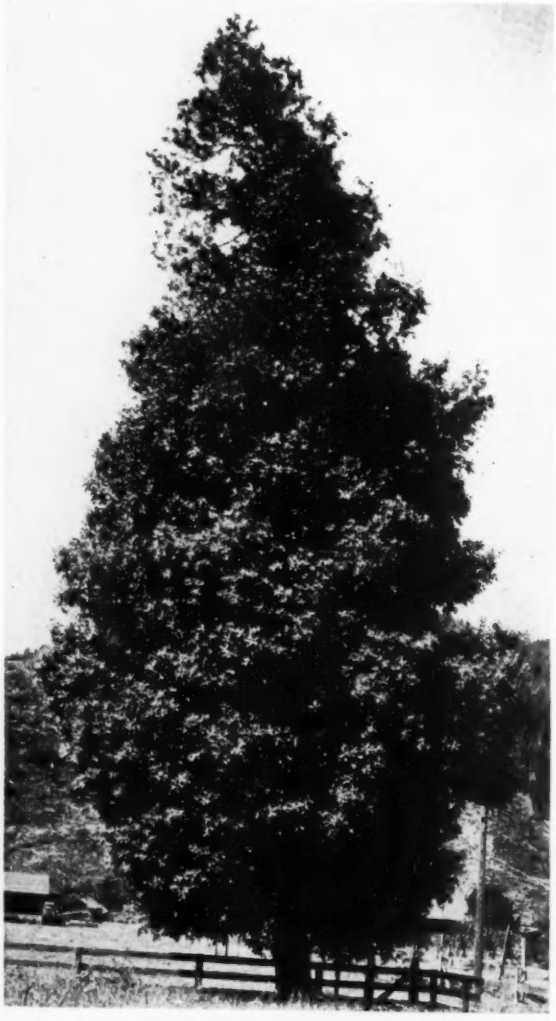
KNOWING YOUR TREES

TANOAK

Lithocarpus densiflorus
(Hooker and Arnold) Rehder

By WARREN D. BRUSH

TANOAK holds a unique position in that of about 100 species of evergreen trees included in the genus *Lithocarpus*, it is the only one native to the Western Hemisphere, the other species growing in southeastern Asia and the Indian Archipelago. Moreover, this genus is considered a connecting link between the oaks and the chestnuts; its flowers are nearly identical with those of the chestnut while its fruit resembles that of the oaks. This species was formerly classed as an oak and was called "tan oak" and "tanbark oak" because of the extensive use of its bark for tanning on the Pacific Coast. Spelling the name as one word, "tanoak," indicates that it is not a true oak species.



W. A. Elliot

The mature Tanoak attains a usual height of from 50 to 75 feet, with a diameter of from one to two feet

From the Umpqua River in southwestern Oregon southward through the coast ranges to the Santa Ynez Mountains (Santa Barbara County) and also in the northern Sierras of California, tanoak generally occurs from sea level to 4,000 and 5,000 feet elevation in valleys and on low slopes, the borders of low mountains and foothill streams, coves and ravines. It sometimes grows in nearly pure, small stands but chiefly in mixture with redwood and Douglasfir, and occasionally with California live oak. It attains its largest size along the coast.

Tanoak is a moderately large tree with a usual height of 50 to 75 feet and a diameter of one to two feet. Some trees attain a height of 80 to 85 feet or more, with a diameter of three to four feet. Much larger trees were probably once common but they are now rare. At high elevations it is often reduced to a shrub less than 10 feet in height with slender, upright branches.

In close stands the long, clear trunk, which is rarely straight, supports a narrow, pyramidal crown of ascending branches; in the open the trunk is short and thick and often disappears in a mass of large, horizontally spreading limbs which form a broad, dense, symmetrical, round-topped crown.

Young twigs are densely woolly but the wool disappears after the first year when the branchlets become deep brown tinged with red, and are often covered with a whitish bloom. The egg-shaped, obtuse winter buds, one-fourth to one-third of an inch long, are covered with densely hairy, loosely overlapping scales.

The oblong leaves measure from three to five inches long and three-fourths to three inches wide. They are slightly scalloped and toothed on the margins. Fully grown leaves are light green, smooth and shiny (occasionally with woolly areas) on the upper surface and densely woolly with reddish brown hairs beneath. In late summer they become thick and leathery and the wooliness disappears except for a few hairs on the lower surface which is then whitish with a very pale blue tint. The leaves of a season's growth persist for three or four seasons.

Male and female flowers are borne separately on shoots of the current season's growth, rarely from buds at the base of leaves of the previous year's growth as in the oaks. The cylindrical male clusters, three to four inches long, are thick and erect, instead of being thread-like and pendulous as in the oaks. The female flowers are usually borne at the base of the uppermost male flower clusters; the male flowers are arranged three in a minute cluster, many of them covering the erect flowering stems. The blossoms appear in early spring and sometimes during the autumn.

The fruit is a bitter acorn, three-fourths to one inch long and one-half to one inch broad, occurring singly or in pairs on stout hairy stems one-half to one inch long.

The acorns mature in the fall of the second season. The nut is pale yellowish brown, usually smooth and shining, but frequently more or less downy. It is embraced at the base by a shallow, pale yellow-brown cup which is lined with lustrous red-brown hairs on the inner surface and covered on the outside with finely hairy, bristly scales which are sometimes very woolly at the base.

On the trunks of large trees the bark is three-fourths to one and a half inches thick, pale brown, tinged with red, often with grayish areas, and is broken by deep, narrow seams into very wide and squarish plates. On young trunks and large branches the bark is smooth and unbroken. It contains appreciable amounts of tannin and has been the principal commercial source of this material on the Pacific Coast for many years.

The wood of tanoak is light brown, faintly tinged with red, very hard, heavy, strong and fine-grained. It is of sufficiently high quality to be used for agricultural implements and as finishing and furniture lumber, but is employed more generally for firewood. Economically tanoak is a tree of considerable importance in the Pacific Coast forests, both for its valuable tanbark and for its timber in a region particularly lacking in hardwoods. Unfortunately, the tree is often cut for its bark without utilizing the wood.

Tanoak is a rather slow growing species. Trees 14 to 18 inches in diameter are from 80 to 130 years old; trees 20 to 60 inches in diameter are from 150 to 250 years old. Although apparently quite free from insect and fungus diseases, the tree is very susceptible to injury from fire and many of the older trees show fire scars. Tanoak produces large crops of seeds, and seedlings are often abundant in partial shade. It also reproduces by means of sprouts which grow vigorously from the stumps and become permanent stems.

Within its narrow range, Tanoak occurs from sea level to about 5,000 feet elevation in valleys and on low slopes

Devereux Butcher

Appearing in the early spring, and sometimes in the fall, clusters of pollen-bearing flowers are thick and erect

Devereux Butcher

Thick leathery leaves are light green, smooth and shiny. Small acorns occur singly or in pairs on stout hairy stems

Devereux Butcher

On old trees the bark is pale brown tinged with red and broken by deep seams. Young bark is smooth and unbroken

VACATION IN THE WILDERNESS

Nine Expeditions announced for the Trail Riders of the Wilderness

Nine expeditions have been scheduled for 1947 by The American Forestry Association's Trail Riders of the Wilderness. They are:

No. 1—Flathead-Sun River Wilderness, Montana
July 7-17. Estimated cost $160

No. 2—Flat Tops Wilderness, Colorado
July 12-19. Estimated cost $135

No. 3—Flathead-Sun River Wilderness, Montana
July 18-28. Estimated cost $160

No. 4—Flat Tops Wilderness, Colorado
July 19-26. Estimated cost $135

No. 5—Sawtooth Wilderness, Idaho
July 21-August 1. Estimated cost $165

No. 6—Maroon Bells-Snowmass Wilderness, Colorado
August 1-13. Estimated cost $170

No. 7—Sawtooth Wilderness, Idaho
August 4-15. Estimated cost $165

No. 8—Maroon Bells-Snowmass Wilderness, Colorado
August 15-27. Estimated cost $170

No. 9—Inyo-Kern Wilderness, California
August 19-30. Estimated cost $185

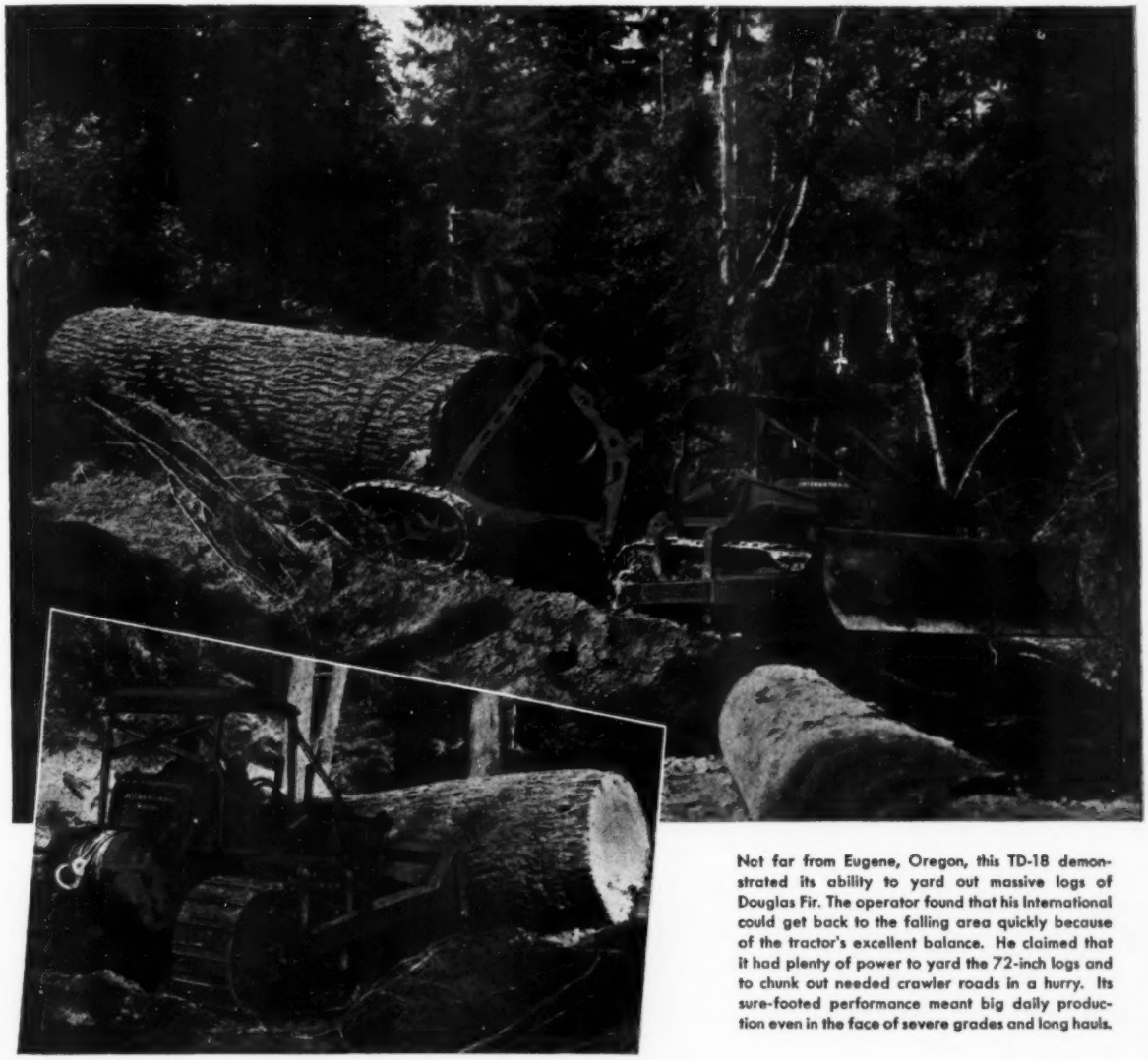
A tenth expedition, to the Gila Wilderness of New Mexico, is under consideration. If organized, it will fall in mid-July. Estimated cost is $155 for twelve days.

Montana's Flathead-Sun River Wilderness lies in the rugged back country, astride the Continental Divide, of the Flathead and Lewis and Clark national forests, just south of Glacier National Park. The Flat Tops and the Maroon Bells-Snowmass wildernesses comprise the untamed regions of the White River National Forest in Colorado, the latter tremendously rugged high country. Idaho's famous Sawtooth Wilderness, just north of Sun Valley, is a wild kingdom of serrated mountains and alpine lakes in the Sawtooth and Boise national forests. The Inyo-Kern Wilderness—a wilderness of the sky—lies on top of the continent in California's High Sierra, in the back country of Sequoia National Park and the Inyo National Forest.

A new feature of Trail Riding this summer are the two eight-day trips in the Flat Tops Wilderness. These are designed for riders who have limited vacations.

If you have never been Trail Riding, plan to go this summer. Get away from crowded highways and resorts to ride tree-lined trails, to fish in fast white water, or to explore afoot these last strongholds of nature. The Trail Riders of the Wilderness offers you this opportunity. Write The American Forestry Association, 919 Seventeenth Street, N. W., Washington 6, D. C., for detailed information.

Trail Riders in the magnificent Maroon Bells-Snowmass Wilderness of the Colorado Rockies



Not far from Eugene, Oregon, this TD-18 demonstrated its ability to yard out massive logs of Douglas Fir. The operator found that his International could get back to the falling area quickly because of the tractor's excellent balance. He claimed that it had plenty of power to yard the 72-inch logs and to chunk out needed crawler roads in a hurry. Its sure-footed performance meant big daily production even in the face of severe grades and long hauls.

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A MARKET FOR HARDWOODS

A North Carolina woodland owner develops a high-grade product from low-grade trees

MANY eastern forest owners hesitate to enter into the management of their timber stands because of the problem of what to do with the low-grade hardwoods. Softwoods can always find a ready market for lumber or pulp, and high-grade hardwoods are sought by furniture and veneer manufacturers. But how can an owner manage a mixed stand and pay the costs of improving his woodland unless he finds a market for the low-grade material?

This problem faced I. P. Call, farmer and woodland owner of Wilkes County, North Carolina. The merchantable white, shortleaf and Virginia pine on his 100 acres of woodland would yield 154,100 board feet of lumber, the local farm forester advised him when together they marked the timber for selective cutting. The mill tally of 154,000 board feet later proved that Forester Mackay B. Bryan knew his business.

None of the intermixed hardwood was marked for cutting, because Mr. Call had an idea. Although Wilkes County is a wooded area, Mr. Call was convinced that farmers and townsmen in nearby Wilkesboro would buy wood—if the wood was of superior quality. "You can sell an Eskimo a block of ice, if it is higher quality ice than he's accustomed to getting for nothing—and if he can be convinced that it is."

M. M. Bryan

Hardwood fuel of high quality is kept in air-dried condition by galvanized sheets

Accordingly, Mr. Call developed a fuelwood business in the heart of a plentiful supply of wood. His business is founded on the theory that there is always room for a quality product at a reasonable price.

In the cutting contract for his timberland, he reserved the rights to the slabs and edgings from the sawmill operation, in addition to reserving from cutting the younger timber trees and hardwoods. With a small power saw he converted the mill waste into stove wood, which he sells for $10 to $12 a standard cord.

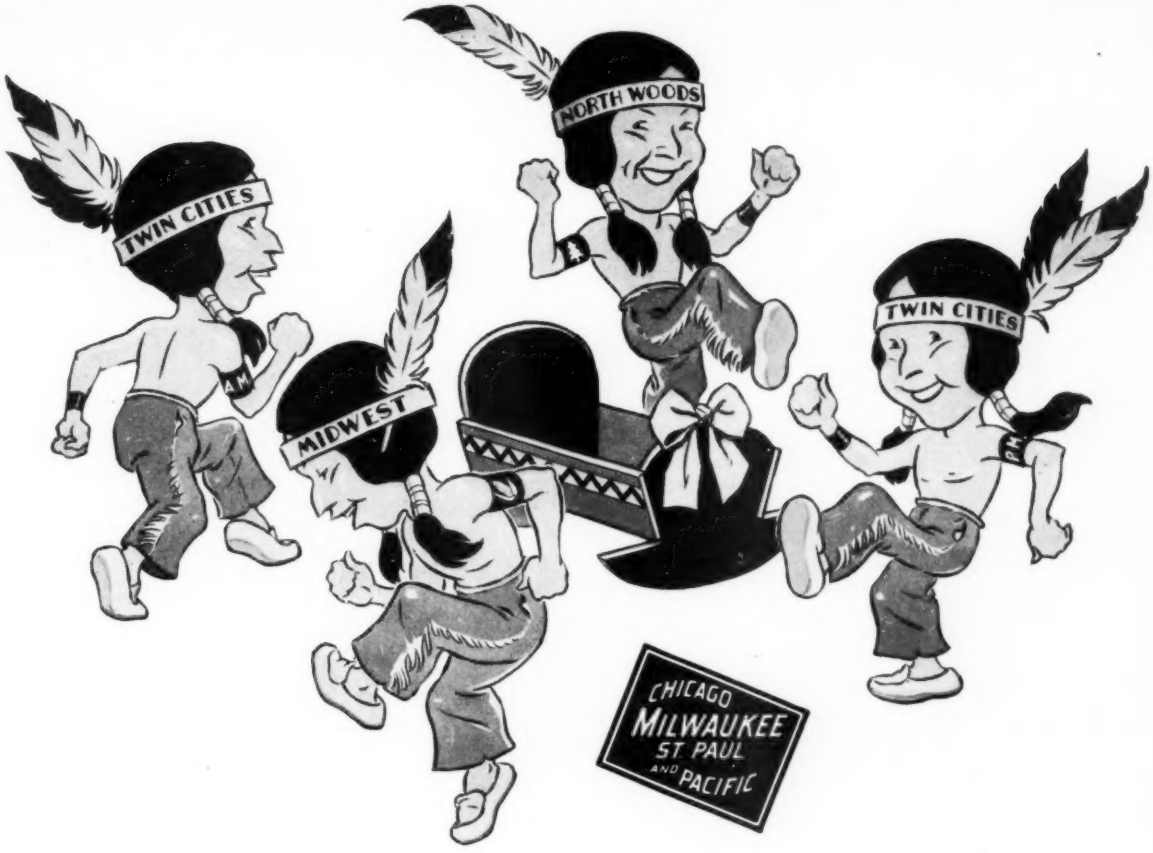
Hardwood trees, too poor in quality to be marketable for lumber or veneer, he cuts into fuelwood, carefully sawing and grading them for varying uses. He has assured his customers of a full cord of air-dried wood. To protect the cords in the woods, Mr. Call covers them with galvanized roofing sheets. His customers know that the Call cordwood is dependable—and his prices are reasonable enough to keep the trade year after year.

The recent harvest of 154 thousand board feet of sawlogs leaves a remaining stand which will soon yield another timber harvest. The sound well-formed hardwoods and pines are putting on good growth and in a few years will be ready for the sawmill or veneer plant. In the meantime, he continues to improve the stand by cutting the lower grade hardwoods for fuel.

In cutting Mr. Call's timber, the mill operator made three sets—three different areas cleared for the mill and three systems of skid roads for bringing in logs. On these, Mr. Call has planted white pine seedlings obtained from the state nursery. By careful planting he has had almost 100 percent survival. The planted pines will have a head start on any competing hardwoods which invade the area, and with the natural seedlings, poles and saplings, which were protected during the cutting operations, they form a future stand.

Mr. Call, who is 65 years old, was asked by a visitor why he planted the pines when he himself would not be here to enjoy the benefits from the mature trees. His answer is that of a man to whom trees mean a lot. "I'd rather have one white pine tree I'd planted as a remembrance than a whole graveyard full of marble tombstones."

Trees and their management have meant a lot to Mr. Call. His 100 acres of woodland, managed for timber and fuelwood, provides sufficient income to keep himself and Mrs. Call comfortable. He takes pride in having solved his problem of low-grade hardwoods by converting them into high-grade fuel.



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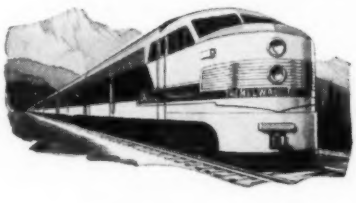

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CONSERVATION IN *Congress*

By A. G. Hall

A bill (S. 338) to amend the basic Plant Quarantine Act of August 1912, by adding a new section limiting entry of nursery stock from foreign countries, was introduced by Senator Capper of Kansas for himself and Senator Thomas of Oklahoma on January 24. This bill is identical to to S. 1990, introduced by Senator Thomas in the 79th Congress, and would authorize the Secretary of Agriculture to limit the quantities of nursery stock allowed to enter this country to that needed for propagation purposes and to require that such stock as may be imported be grown under post-entry quarantine until released as free from harmful foreign insect and disease pests. S. 1990 received a favorable report from the Department of Agriculture and the concurrence of the Departments of State and Commerce and of the Bureau of the Budget, but no action was taken by the 79th Congress. It is anticipated that similarly favorable action will be recommended on S. 338 by the various departments and bureaus concerned and that early hearings will be held.

The Jackson Hole National Monument again comes up for consideration in H. R. 1330, introduced by Representative Barrett of Wyoming on January 27. His bill, similar to those introduced in previous years, would abolish the monument and restore the lands within its boundaries to their status prior to the creation of the monument.

A special commission to recommend to the Congress action toward the solution of problems of use in the Olympic National Park is proposed by H. J. Res. 84, introduced by representative Norman of Washington on January 23. A nine-man commission is proposed with representation from the National Park Service, the U. S. Forest Service, the Department of Conservation and Development of the State of Washington, employees of the local logging and timber converting industries of Washington, management of the logging and timtimber converting industries, civic and community interests of the Grays Harbor region and of the Northern Olympic Peninsula, the farming and rural community interests of the region, and the recreational and scenic conservation interests. The commission would meet not later than June 15, 1947 and would submit its findings and recommendations to the Congress not later than January 15, 1948.

The question of federal contributions to the states in lieu of taxes on federal lands is proposed for consideration in S. Res. 71 introduced on January 24 by Senator Knowland of California. The resolution would authorize a complete study and investigation of the burdens which such lands impose upon the states and their local subdivisions and the extent to which the United States should contribute to the financial support of the state and local units involved. Present systems of payment to the states vary widely. For example, from national forest lands the states receive 25 percent of the gross receipts, from Grazing Service lands they receive 50 percent, and from Indian Service lands they receive nothing. An early settlement of the question of equitable payments to the states is needed to overcome local opposition to federal acquisition of additional lands. Two additional bills, H. R. 1681 and H. R. 1761, introduced by Representatives Winsted and Whitten of Mississippi would provide for payments to the states to be used for the payment of bonds outstanding against the states or political sub-divisions.

Senator Johnson of Colorado, introduced on January 15 a bill (S. 251) to establish the National Elks Scenic Area and Park in the San Juan Range of the Rocky Mountains in Colorado, providing a sum of $2,000,000 for the development of facilities and administration for scenic and recreational purposes.

The major Senate committees dealing with conservation in the 80th Congress are:

Senate Committee on Agriculture and Forestry—covering general forestry and forest reserves other than those created in the public domain, soil conservation, and protection of wildlife in forest reserves. Republican members are Senators Capper (Kansas), chairman; Aiken (Vermont), Bushfield (South Dakota), Wilson (Iowa), Young (North Dakota), Kem (Missouri), Thye (Minnesota). Democratic members are Senators Thomas (Oklahoma), Ellender (Louisiana), Lucas (Illinois), Stewart (Tennessee), Hoey (North Carolina), Pepper (Florida).

Senate Committee on Appropriations—Republican members are Senators Bridges (New Hampshire), chairman; Gurney (South Dakota), Brooks (Illinois), Reed (Kansas), Ball (Minnesota), Ferguson (Michigan), Wherry (Nebraska), Cordon (Oregon), Saltonstall (Massachusetts), Young (North Dakota), Knowland (California), Dworshak (Idaho). Democratic members are Senators McKellar (Tennessee), Hayden (Arizona), Thomas (Oklahoma), Tydings (Maryland), Russell (Georgia), McCarran (Nevada). O'Mahoney (Wyoming), and Green (Rhode Island).

Senate Committee on Public Lands—whose purview includes public lands generally; forest reserves and national parks created from the public domain, preservation of historic ruins and objects of interest on the public domain, irrigation and reclamation, interstate compacts relating to waters for irrigation purposes. Republican members are Senators Butler (Nebraska), chairman; Millikin (Colorado), Robertson (Wyoming), Cordon (Oregon), Dworshak (Idaho), Ecton (Montana), Malone (Nevada), Watkins (Utah). Democratic members are Senators Hatch (New Mexico), O'Mahoney (Wyoming), Murray (Montana), Downey (California), and McFarland (Arizona).

House committees dealing with conservation are:

House Committee on Agriculture—covering agriculture generally, adulteration of seeds, insect pests, and protection of birds and animals in forest reserves, forestry in general and forest reserves other than those created from the public domain, entomology and plant quarantine, plant industry, soils and agricultural engineering, crop insurance and soil conservation. Republican members are Representatives Hope (Kansas).

(*Turn to page* 138)

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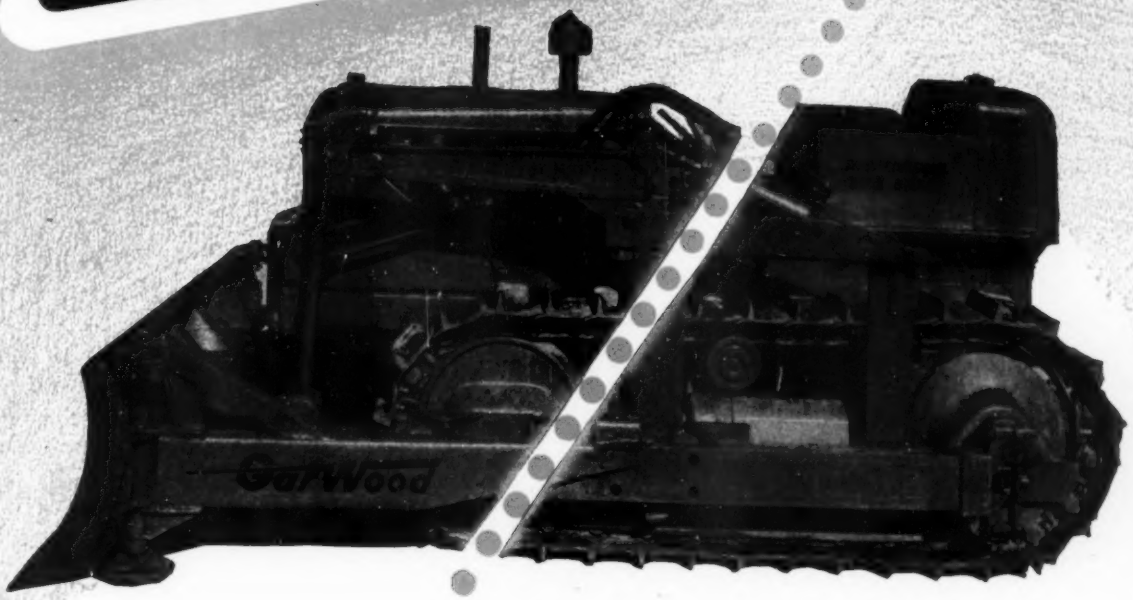

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Krug Sees Threat to Public Domain

DANGER to the national resource interest is foreseen by Secretary of the Interior Julius A. Krug in his annual report. "We are going to need more plant for many types of production," he said. "Our past neglect to take positive action to put our privately owned forests on a sustained-yield basis, plus the enormous wartime demand, threatens an invasion and overcutting of all federal forests, including that part which is under the Department of the Interior. We feel that would be compounding our past mistakes. We propose to fight against overcutting on the public domain, for sustained-yield operation of private forests and for more national and private forests."

Another danger, Mr. Krug pointed out, lies in the threat to neglect and thereafter to parcel out the rest of the public domain to private interests. This he sees as a threat to end opportunity for the many, which has been the basis of public domain and homestead policy. A strong and continuing policy is needed, he said, to prevent overgrazing and land destruction, and it must be an interstate policy. It must be a policy that recognizes the essential thriftlessness of spending billions on dams while we let the watersheds above them be ruined.

Stressing the need for surveys and land classification, a project which might cost as much as $7,000,000, Mr. Krug stated that it is the intention of his department to obtain the best use of all the lands administered by it. The forest lands are to be used, he said, to produce their fair share of the lumber and other wood needs of the nation, but are not to be sacrificed through overcutting. Sustained-yield management, he declared, is to be maintained or established. Grazing lands are to be protected from further erosion. More than two acres in every 10 of the 282 million acres of range lands and Indian lands are in a critical erosion condition, and three more out of every 10 need treatment to restore them to maximum productivity, he said, adding that conservation work has started on 11 million acres and is planned for another 49 million. At present rates, he pointed out, the job can never be finished. In 1946, only one and one-quarter million acres were being treated; meanwhile, 73 million acres were getting progressively worse. An investment of $90,000,000 is needed for the worst 60 million acres and another $110,000,000 for the rest, Secretary Krug said. This work through decreased siltation, ought to save the value of many of the hundreds of millions of dollars invested, and to be invested, in storage reservoirs and power plants.

The department is concerned, Mr. Krug declared, over the possibility of unnecessary and unjustified encroachment upon and damage to park areas by some of the federal water control projects now in the planning stages. Numerous tracts of private or state lands within the park boundaries, he stated, offer one of the most serious impediments to sound conservation measures and to sound administration and development. Opposition to the acquisition of such areas by the Park Service must be overcome by provision for adequate payment to the states and local units of government in lieu of taxes on such lands.

Forest Service Forecasts Continuing Timber Shortage

DESPITE the fact that manpower and equipment shortages are being progressively overcome, it is not likely that industry will be able to meet the consumer demand for forest products in full for many years, L. F. Watts, chief of the U. S. Forest Service, said in his annual report.

He predicted the present shortage of timber products will last until we grow a great deal more timber, because "you can't grow trees of sawtimber size overnight."

The chief forester said that in the past 36 years the nation's woodpile has been reduced more than 40 percent. Evidence of forest depletion today, he said, is found in every part of the country. Long before the war timber shortage had curtailed output in the older timber producing regions—New England, Pennsylvania and the Lake States. In 1946, shortages of pine timber big enough to make good lumber were pronounced in various parts of the South. And even in the western states, where today 96 percent of the nation's remaining virgin timber is located, some localities "are feeling the pinch," industry being forced to reach further into the more remote stands in the search for new "logging chances," he declared.

"We are overdrawing our sawtimber bank account by about 18.6 billion board feet a year," Mr. Watts said.

He noted that "leaders in the forest industries realize that the timber supplies they will need to stay in business will have to be grown," citing the industry-sponsored tree-farm movement, the similarly sponsored trees - for - tomorrow planting campaign in the Lake States, and the fact that the American Forest Products Industries has adopted a program for continuous growing of trees on all land suited to the purpose and for bringing the widest area possible under permanent forest management.

Industrial forest owners, Mr. Watts said, were making encouraging advances in good cutting practice, but this alone will not solve the problem of future national timber supply, since corporate and other large holdings constitute only 15 percent of the total commercial forest acreage. For all private forest land 64 percent of the cutting practice is currently classed as poor and destructive and only seven percent as good.

The key to a permanent timber supply, said the chief forester, is a realistic and comprehensive nationwide program to keep forest lands productive and build up growing stocks. Such a program would (1) bring organized fire protection to the 136 million acres of forest land still without it, and build up the forces now fighting forest pests and parasites; (2) increase planting to bring into productiveness millions of non-productive forest acres, (3) reduce waste through more complete utilization of trees, and (4) stop destructive cutting practices and encourage wider adoption of good forest management.

The chief forester held that some measure of public control over cutting and related practices was vital to the successful development of an effective forest conservation program. The proposed regulatory program might well be administered by the individual states, with federal financial assistance, and in line with basic standards set up by national legislation, with provision for direct federal administration in states which fail to take appropriate action within a reasonable time.

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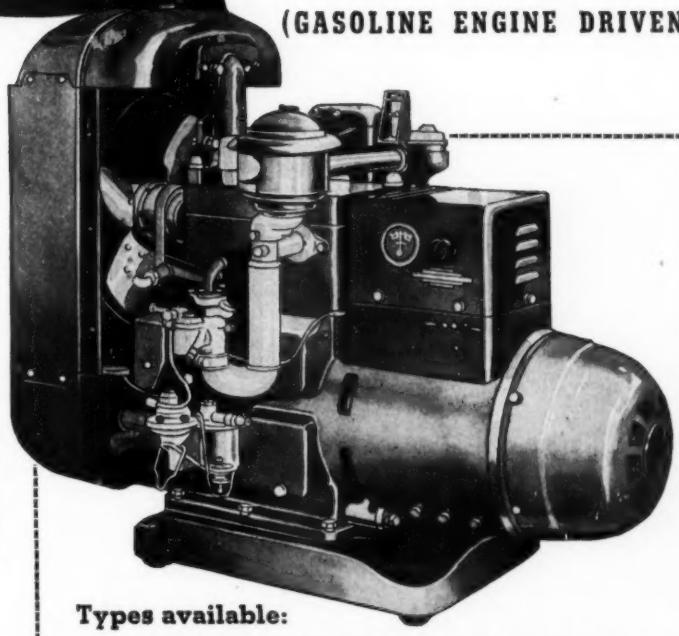

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Poles

(*From page* 118)

is made upon an industry already strained to the utmost to produce lumber and almost every other wood product. But success is being achieved. Seven hundred thousand poles were cut in 1946 and a million are due in 1947. This sharp rise is linked to the current slackened demand for piling. Here, as in the South, the treating plants can shift between poles and piling in response to public demand and margins of profit.

Best conditions for growing Douglasfir poles obtain in young stands where the stocking is dense enough so that growth rings are not too wide and branches are small; and yet a crop may be had in 35 years. Logging and fire control have resulted in 3,200,000 acres of such stands containing roughly 46 million poles.

The U. S. Forest Service and industrial foresters are now making studies to determine the proper methods of managing second-growth stands for maximum yield of wood products. Pole-size material that dies and is lost in the ordinary development of a stand can no longer be ignored. If the large land-owning companies can integrate their operations so as to use every part of each tree to best advantage, a reliable source of an enormous number of poles will have been found.

With the conclusion that there is an ample supply of suitable trees in the woods, the main question remains unanswered. Within the next 10 years will 54 million trees move as poles into the treating yards and thence into the ground?

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Interior's Bureau of Land Management

On July 16, 1946, the Grazing Service and the General Land Office of the Department of the Interior were merged into one agency, the Bureau of Land Management. The purpose of the merger was to bring together in one branch of the department the administration of public lands and other natural resources in the interests of greater efficiency and coordination of programs.

The new organization is now being manned for action. Fred W. Johnson, formerly commissioner of the General Land Office, has been named director of the bureau, and Joel D. Wolfsohn is associate director. Within the Washington office and in the regions and districts where the functions apply, six branches are established. They are land classification and planning, John R. Riggleman, chief; adjudication, Thomas C. Havell, chief; range management, J. Will Robinson, chief; engineering and construction, Albert C. Horton, Jr., chief; administration, Depue Falck, chief; forest and resource management, for which no chief has yet been appointed. The latter division includes the management of all resources other than range.

The seven regions are: 1, with headquarters at Portland, covering Oregon, Idaho and Washington, Walter H. Horning, administrator; 2, at San Francisco, covering California and Nevada, Marion Clawson, administrator; 3, at Salt Lake City, covering Utah and Colorado, H. Byron Mock, administrator; 4, at Billings, covering Montana, Wyoming, North and South Dakota, Nebraska, Kansas, Iowa and Missouri; 5, at Albuquerque, covering New Mexico, Arizona, Texas, Oklahoma, Arkansas and Louisiana; 6, at Washington, D. C., covering all other states; and 7, at Anchorage, covering Alaska, Lowell M. Puckett, administrator.

Conservation in Congress

(*From page* 132)

chairman; Andresen (Minnesota), Johnson (Illinois), Murray (Wisconsin), Clevenger (Ohio), Gillie (Indiana), Hall (New York), Hill (Colorado), Hoeven (Iowa), Simpson (Illinois), Gross (Pennsylvania), Fuller (New York), Bramblett (California), Dague (Pennsylvania), Goff (Idaho), Cotton (New Hampshire), Farrington (Hawaii). Democratic members are Representatives Flannagan (Virginia), Cooley (North Carolina), Zimmerman (Missouri), Pace (Georgia), Poage (Texas), Grant (Alabama), Granger (Utah), Gathings (Arkansas), McMillan (South Carolina), Worley (Texas), Abernathy (Mississippi), Bartlett (Alaska), Fernos-Isern (Puerto Rico).

House Committee on Appropriations—Republican members are Representatives Taber (New York), chairman; Wigglesworth (Massachusetts), Plumley (Vermont), Dirksen (Illinois), Engel (Michigan), Stefan (Nebraska), Case (South Dakota), Keefe (Wisconsin), Johnson (Indiana), Jones (Ohio), Jensen (Iowa) Andresen (Minnesota), Ploeser (Missouri), Tibbott (Pennsylvania), Horan (Washington), Canfield (New Jersey), Schwabe (Oklahoma), Fenton (Pennsylvania), Church (Illinois), Griffiths (Ohio), Stockman (Oregon), Phillips (California), Scrivner (Kansas), Robertson (North Dakota), Couderet (New York). Democratic members are Representatives Cannon (Missouri), Ludlow (Indiana), Kerr (North Carolina), Mahon (Texas), Sheppard (California), Thomas (Texas), Hendricks (Florida), Kirwin (Ohio), Norrell (Arkansas), Gore (Tennessee), Whitten (Mississippi), D'Alesandro (Maryland), Andrews (Alabama), Rooney (New York), Gary (Virginia), Bates (Kentucky), O'Brien (Illinois), Fogarty (Rhode Island).

House Committee on Public Lands—covering public lands, generally, including entry, easements and grazing thereon, mineral resources, forest reserves and national parks created from the public domain, preservation of prehistoric ruins and objects of interest on the public domain, irrigation and reclamation, and geological survey. Republican members are Representatives Welch (California), chairman; Crawford (Michigan), LeCompte (Iowa), Lemke (North Dakota), Rockwell (Colorado), Barrett (Wyoming), Taylor (New York), LeFevre (New York), Miller (Nebraska), D'Ewart (Montana), Poulson (California), Russell (Nevada), Sanborn (Idaho), Jenison (Illinois), Dawson (Utah), Farrington (Hawaii). Democratic members are Representatives Somers (New York), Peterson (Florida), Ball (Missouri), Murdock (Arizona), Fernandez (New Mexico), Engle (California), Hedrick (West Virginia), Penden (Oklahoma), Redden (North Carolina), Carroll (Colorado), Bartlett (Alaska), Fernos-Isern (Puerto Rico).

New Mahogany Forests

Discovery of extensive mahogany forests a short distance from Belem, State of Para, Brazil, is reported by Colonel Euclides Dias, of the Instituto Agronomico do Norte, a division of the Department of Agriculture.

Samples of this wood were identified by botanists of Rio de Janeiro's Botanical Garden as genuine *Swietania macrophila*, that is, the best type of mahogany.

The newly found mahogany district is reported to be one of the most extensive in the Tocantins area, though local residents were unaware of its value and used the trees chiefly as firewood.

Of most importance, however, is the fact that the new mahogany forests are within easy access of Belem, and hence will have the advantage of convenient transportation during their exploitation.

Seeds Away!

(*From page* 121)

fected to the point where they could produce 30,000 pellets a minute. According to Dr. Adams' figuring, the aerial pellet seeding was saving the government $1.60 on each acre, against any other method of reseeding that could have been used.

The method developed for this operation was for the pilot to seed in parallel rows a mile long and about 250 feet apart. The beginning and end of each row was marked by a mounted Indian holding a red flag.

By the end of June 1946, nearly 100 tons of pellets had been dropped, and the project moved to the Apache Reservation near Globe. Dr. Adams, meanwhile, proceeded to "sweat out" the results of the Papago seeding. If it failed, his ambition and hope for defeating the desert would have been blasted. If the experiment proved a success, the news, he felt, would have world-wide significance. Applied to the ruined countries of Asia and Europe, the method could do much to banish hunger through air planted crops.

While the government's range managers share Dr. Adams' enthusiasm, they still are hesitant to pronounce the method an unqualified success. Time alone will tell whether the end results being sought — soil conservation and improvement and better grazing areas — will actually materialize. They are convinced that pelletizing seed and its distribution over wide areas by airplane is the most inexpensive method yet found toward solving the problem of revege-

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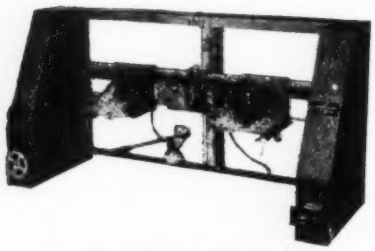

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tating the least accessible desert areas.

The proof of the tests will be known this year. The seeding of 10,000 acres of the Papago Indian Reservation was done in June 1946, at the end of the dry season. Fortunately, the seeding was followed by one of the wettest rainy periods that area has known in a long time. According to Edward N. Kavanagh, director of soil and moisture conservation, in the Department of the Interior's Office of Land Utilization, the real test will come in April, May and June of this year. These three months are hot and dry on the Papago. If even as few as 10 percent of the plants pull through the dry season or recover in the following wet season, the seeding method can be considered successful. If sufficient plants survive, they can be depended upon to help reseed the areas, providing grazing is controlled for a few years.

One outstanding advantage of the pellet method, says Mr. Kavanagh, is that it scatters the seed over wide areas, thereby reducing seed destruction by rodents and birds. When other methods are used, smaller areas must be treated and the tasty seed provide a banquet table for rodents and seed-eating birds for miles around.

Initial observations of the success, as measured last fall, show that the first seed germination occurred at the toes of slopes and other places where the soil had been disturbed by natural means. Later, however, because the African love grass characteristically is delayed in germination, the plants appeared on slicks and ridges. It is believed by Mr. Kavanagh that the method will prove even more successful if scarifying or other soil disturbing treatment can be given to the areas in the dry months before the seeding operations. Another factor of importance is the selection of the seed species. African love grass had already proved adaptable to the soil and climatic conditions of the Papago Reservation. Further north, on 40,000 acres in the San Carlos, Navajo and Hopi areas, western wheat and crested wheat grasses, other already proved species, were used.

If the method proves successful, it may revolutionize the approach to land management problems over vast areas of sub-normal lands—lands too remote and too rocky to permit the use of ordinary farm equipment. Under ideal conditions the airplane method of seeding with pellets can cover a 250 foot strip, four miles long, in one minute, thus reducing the costs to around $1.75 an acre.

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3-47

Dutch Elm Disease

(*From page* 124)

the adequacy necessary to draw any conclusions on the present density of the disease.

A second type of scouting was done in states where little or no attempt is made to control the disease. In such areas, the purpose is to determine only if the disease exists. As soon as the scouting crews find a township infected they move on to new territory.

Another type of scouting was of an exploratory nature—in states remote from the known infected area. In this work the scouts followed the southern and mid-western routes over which were transported the imported elm burl logs which brought the first cases of the disease to this country. They worked also in areas where the phloem necrosis disease had created conditions favorable to the bark beetles, and visited plants known to be cutting or using elm.

Scouting to assist state or local officials in controlling the disease was performed in eastern Connecticut, western Massachusetts, Vermont, Delaware, Virginia, Indiana and Maryland. In Connecticut, four new infected towns brought the total to 46, with 244 new cases. In Massachusetts, 271 new cases were found, nine of them in a Boston suburb which previously had none. Although 600 square miles were scouted in Vermont and exploratory surveys were made along Lake Champlain and the Canadian border, only six new cases were detected, and these did not extend the affected area. Eight new cases were found in Delaware, near the Pennsylvania state line. Six new cases were discovered in Virginia. In the Indianapolis area of Indiana 270 new cases were found. About 1,200 square miles were scouted in Maryland; 14 new cases were found in Carroll and Montgomery counties. No work was done in Frederick County, where the state considers the disease out of control.

In states not actively engaged in state-wide control work, disease extensions were found in New York, Pennsylvania, Ohio, Kentucky and West Virginia.

No diseased elms were found in the District of Columbia. District and National Capital Park Service crews are removing dead elms to reduce bark beetle populations.

Exploratory scouting was done in 19 states, and while some evidences of possible Dutch elm disease were found 300 to 400 miles from the nearest known diseased areas, no cases were definitely confirmed.

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Jackson Forest

(*From page* 123)

of the ignominious "water slinger," the bulls left the woods and redwood logging became a mechanized, noisy procedure.

Jacob Green Jackson died at the age of 84 after four decades as founder and president of the Caspar Lumber Company. Mrs. Abbie Krebs, Jackson's daughter, became executive head of the concern until her son, C. J. Wood, became president in 1910. The Caspar Lumber Company has never left the family's hand.

Caspar Lumber Company was one of the first to use tractors for logging, beginning in the 1920's. Last year the company operated a fleet of modern logging trucks. Twenty miles of railroad laid with 50-pound steel and five locomotives, the largest weighing 200 thousand pounds, as compared with the original Pansy's scant 12 tons, hauled the long trains of logs to the mill on Caspar Creek.

The present mill, built in 1888 after the original was destroyed by fire, will continue to operate another five years, after which the saga of the Caspar Lumber Company will come to a close.

California's Division of Forestry will manage the newly acquired forest for the interest of the people of the state. Located in the heart of the redwood region at the edge of the Pacific, the area contains 11,300 acres of young growth timber of sawlog size, 7,000 acres of old growth partially logged, 9,000 acres of young growth from 20 to 30 years old, 5,000 acres of selectively logged recent cutting, and 6,300 acres of clear-cut land. About 1,500 acres are in miscellaneous growth and there is a tract of 6,000 acres of virgin timber reserved by the company to be cut according to redwood forest practice rules.

With its excellent distribution of age classes, the forest provides an unparalleled opportunity for demonstration in forest management, which includes, of course, cutting and logging practices designed to promote better growth. Complete use will be made of the area, harvesting hardwoods, tanbark, pulpwood and ferns in addition to conventional forest products such as sawlogs, poles and piling.

A detailed management plan will be prepared by the State Forester, subject to approval by the State Board of Forestry. Continuous forest production with due regard to the preservation of soil, watershed, wildlife and scenic and recreational values will be the goal.

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(*From page* 100)

watershed as a testing ground for determining, in cooperation with other interested agencies, the most effective methods for accomplishing full development of resources. Consequently, the project described earlier in this letter was adopted for a thorough determination of its merits in producing results.

Further explanation of certain significant features of this plan may be desirable. For instance, the agencies concerned have agreed to test the effectiveness of free distribution of trees for the following reasons:

1. Several hundred years will be required, at the present rate of progress, to plant this country's lands urgently needing reforestation, according to the estimates of Mr. Preston and others competent to judge. It is definitely in the public interest to provide for accelerated reforestation of idle and unproductive lands.

2. Every acre reforested, no matter where, why, or by whom, results in some degree of public benefit in addition to that gained by the planter. Very often, especially in the case of severely eroded or denuded lands, the public benefits are greater and are realized sooner. In view of the public interest in watershed protection and reclamation of idle lands, public production of free planting stock provides an equitable distribution of costs. This same principle is recognized in the more complicated procedures involved in public payments (actually refunds to landowners) for approved soil conservation practices.

3. The poorest lands most in need of reforestation are most frequently owned by the poorest people least able to pay cash for seedlings. However, a man's financial inability to pay cash for trees is by no means a true measure of his interest in reforestation or of his sincere desire to reforest his idle lands. Experience in the Tennessee Valley has demonstrated convincingly time and again that the man who expends his own hard labor in tree planting develops an interest more enduring than that of the man who pays only in dollars to get the job done.

4. The extent of landowner participation where trees have been furnished without charge has greatly exceeded that in states requiring cash payment for nursery stock. Witness the past progress in the shelterbelt project of the Forest Service, as well as in the regions where Soil Conservation Service seedlings were provided. Past results in the Tennessee Valley also demonstrated this fact.

5. The question of free trees versus distribution at or below cost of production presents no real issue of principle, inasmuch as the public financial assistance differs only in degree. Few if any Clarke-McNary trees are now being distributed at the actual cost of production.

You may also wish to know why TVA undertakes the production of nursery stock for this project. This service and other assistance are provided as an equitable federal share of the total public costs. The project furthers the objective of resource development and watershed protection for which TVA was created. Assured production and availability of sufficient quantities of high-quality planting stock are necessary to meet the requirements of the TVA Act, which emphasizes "reforestation and the proper use of marginal lands in the Tennessee Valley."

Moreover, nursery production by TVA relieves the state forestry organizations of this work at a time when they are still inadequately financed and equipped to carry on other important projects necessary to an effective forestry program. Production of large quantities of seedlings in two large nurseries is much more economical than the same production scattered among many smaller ones.

The collaboration between federal and state agencies which this project has developed, as well as close cooperation between state agencies, deserves further comment. The plan recognizes the primary responsibility of the state forester for the forestry program of his state, and consequently the federal participation of TVA is channeled through his organization. The arrangement also recog-

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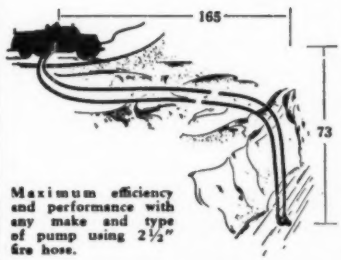

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nizes the primary responsibility of the extension service in providing advice and assistance to farmers in the adoption of sound land-use practices. These two state agencies cooperate in the conduct of this project, so that both may undertake their appropriate share in line with their respective objectives and responsibilities. An effective demonstration of the mutual benefits of such collaboration may have far-reaching effect in the progress of state forestry programs elsewhere.

In this letter I have discussed the Tennessee Valley reforestation project at some length in the belief that you and others might be interested in this effort to test the effectiveness of methods which have been developed in the regional resource development program conducted under the TVA Act and which depart in some significant respects from traditional procedures. The state foresters and the extension services of the participating states concur in the submittal of this letter for publication. — *Willis M. Baker*, Director, Forestry Relations Department, Tennessee Valley Authority, Norris, Tennessee.

Beacon Rock

(*From page* 125)

surrounding territory made into Beacon Rock State Park. The original 480 acres were donated as a gift by his heirs. Later the Skamania County commissioners gave about 2,500 acres of tax delinquent land to be added to the original plot. Then CCC boys developed a modern camp ground—a community kitchen with stoves, tables and chairs, and outdoor tables and equipment. They put in a water supply, built rest rooms, removed dead material and much underbrush, built pathways, roads and bridges. Today the park is a popular spot for campers and picnickers.

The trail to the top of Beacon Rock is a series of switchbacks. In many places the rock was literally chiseled to provide space for wooden bridges and stairways; in other spots steps were carved directly into the stone. Thus the rock that at one time could be climbed only with the help of ropes, now can easily be scaled by anyone who cares to walk that far. And in many places the climb is not especially steep, much of it is just like climbing stairs.

The climb is begun on the west side following a path which leads from the highway. As this gradually works around to the east, there is a change in the air, in the foliage, in the "feel" of the atmosphere. On the west side is the heavy, damp feeling of wind from the ocean, while on the east is the lighter, drier air with the smell of dry grass and wheatfields.

From the summit can be seen the wild terrain of the gorge on each side of the river, the roads and railroads, the river flowing calmly after its struggle through the gates of Bonneville, the farm lands and buildings on the bottomland, the water marks on the river banks, an island or two, usually a boat of some kind on the river, the cliffs and peaks of the Cascades.

Beacon Rock is a natural beacon and as such it served the native Indians as they journeyed up and down the river for centuries before the white man came. Its inaccessible height and walls that defied even expert climbers inspired many an Indian legend which still is told for entertainment if not for fact. After the white man arrived the rock served him in much the same capacity, guiding the traveler along the river and serving as a landmark until today, with a huge light placed on its highest peak, it guides the air traveler as well, and its searching beam flashes through the darkness to point the way for all who care to use it.

AUTHORS

OREN ARNOLD (*Create a Bit of Forest*) is a well-known writer of Phoenix, Arizona. H. H. HENRY (*Seeds Away!*) writes from Tucson. HENRY S. KERNAN (*Wanted: 80,000,000 Poles*) was formerly on the Forest Resource Appraisal staff. CLARA GALBRAITH KNOLL (*Beacon Rock*), a Washington State writer, spent three years at the Columbia River Gorge. ORLO STRUNK, JR. (*Academic Angling*) spends his spare time writing and fishing in Pennsylvania. ARNOLD F. WALLEN (*Jackson Forest*) is forest technician, state division of forestry, Santa Rosa, California.

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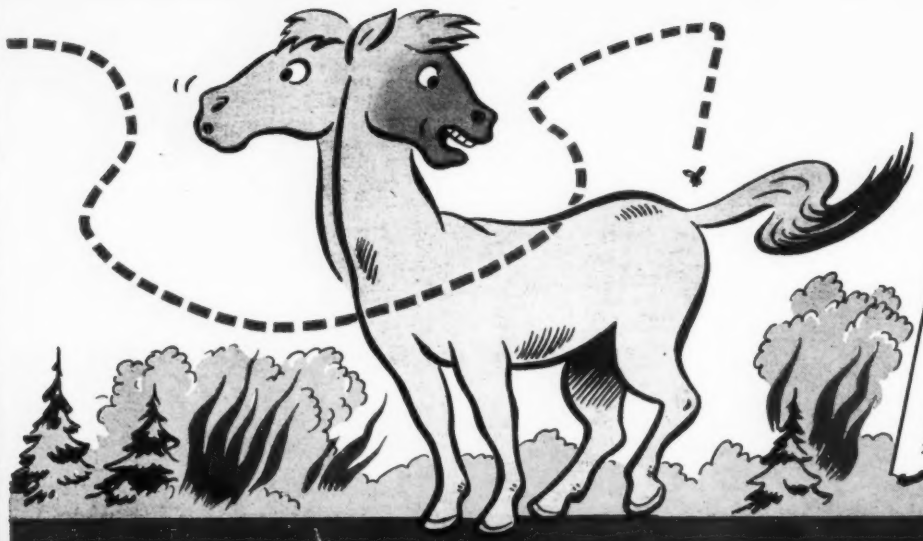

Fly Lights, Gets a Switch, Timber Burns

YREKA, Cal., Aug. 21—(U.P.)—A fly started a chain reaction that destroyed 55 acres of virgin timber, U. S. Forestry officials said today.

The fly made a six-point landing on the horse. The horse switched its tail. It swept away the fly and in so doing touched a "hot wire caused by a broken insulator."

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